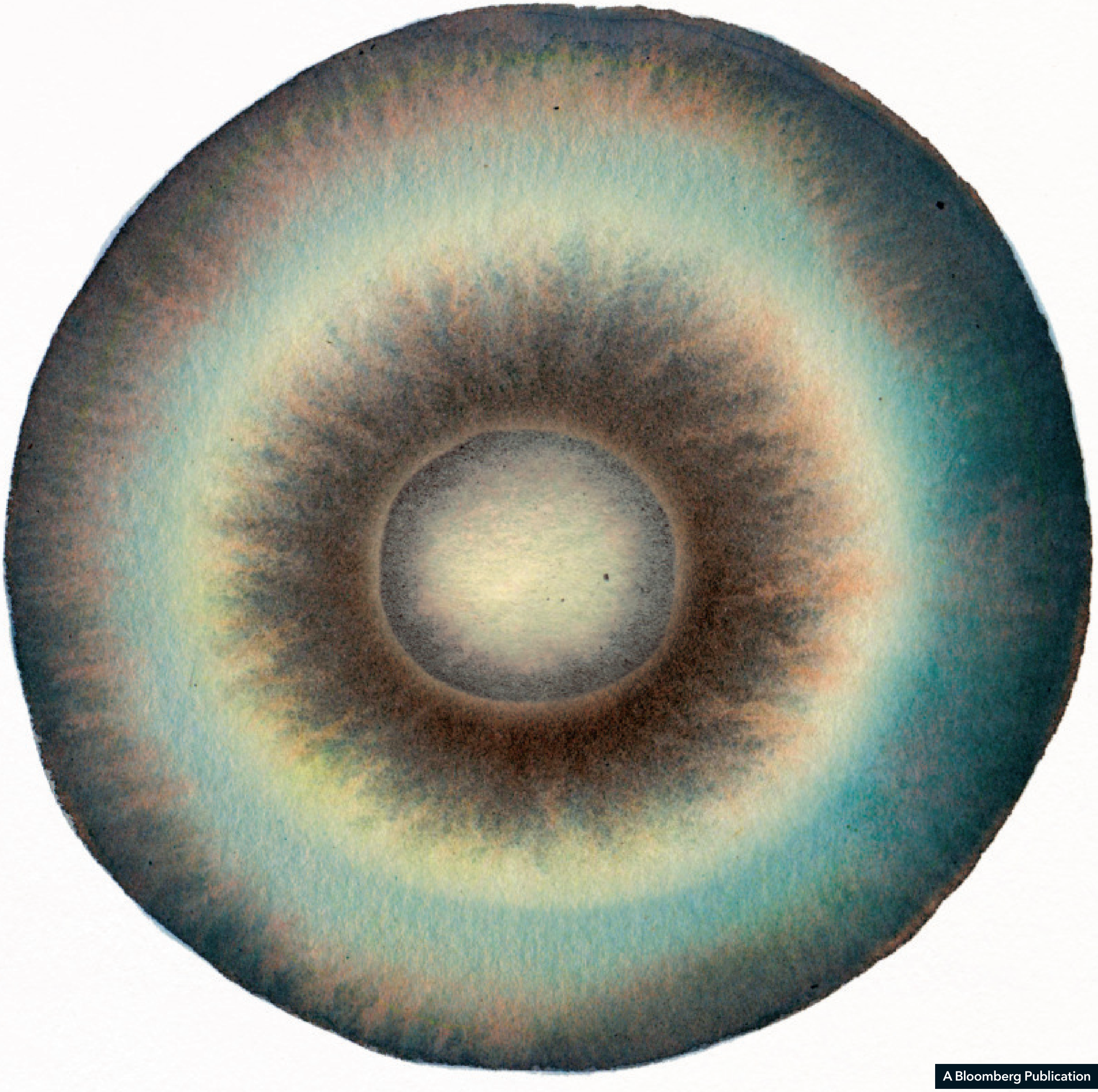
January 2025

Bloomberg Businessweek

The Human Egg A globe-spanning investigation into the money, opportunity and exploitation in the booming fertility industry



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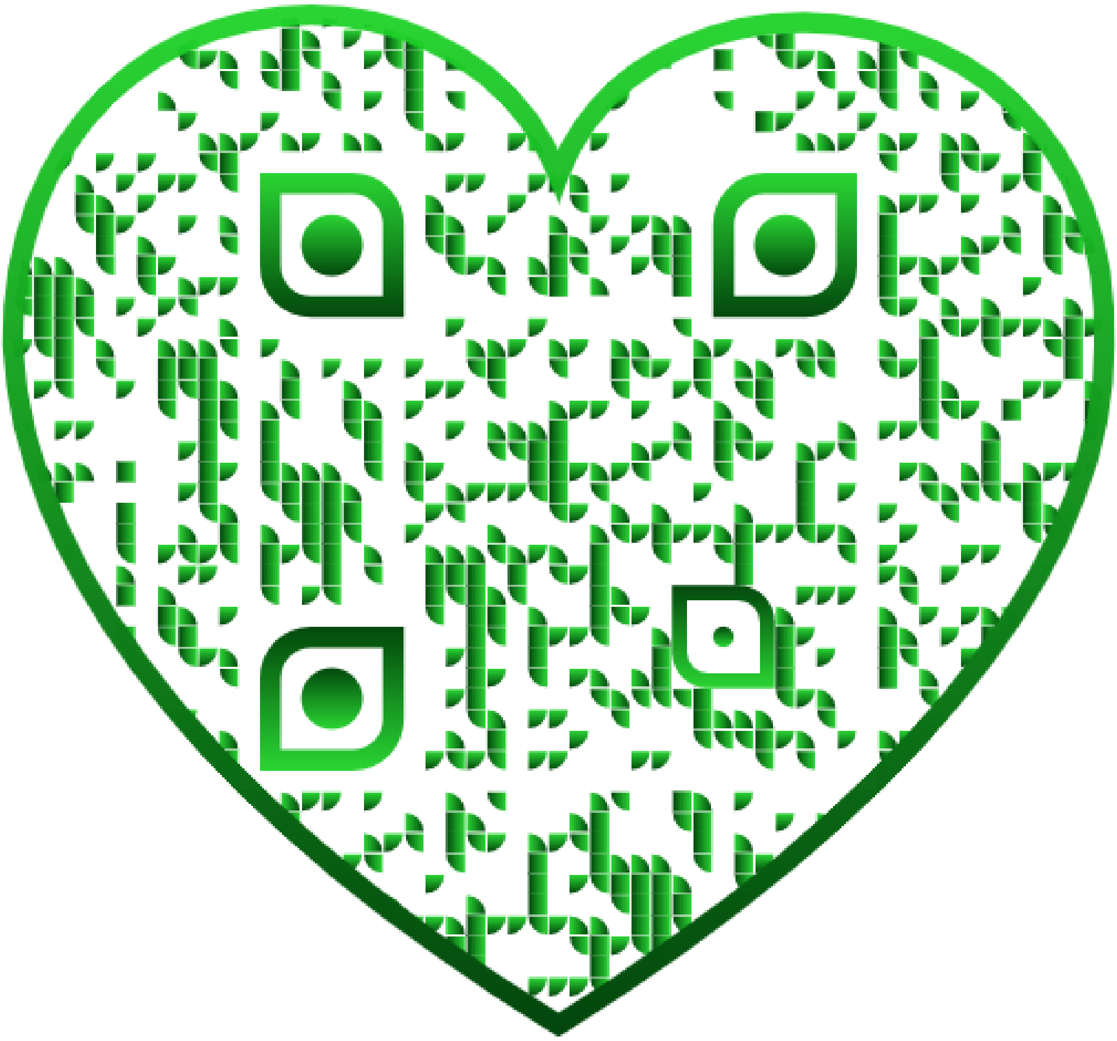

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MOVE BEYOND

The Past Two Years Have Been Historic for Japan’s Financial Markets—Will 2025 Be More of the Same?

A convergence of macroeconomic trends, geopolitical shifts, and transformative reforms has propelled Japanese assets to unprecedented heights. Looking ahead to 2025 and beyond, these dynamics show no signs of slowing.

On March 4, 2024, the atmosphere at the Tokyo Stock Exchange (TSE) was electric. Traders held their breath, eyes glued to monitors, until a collective gasp echoed as the Nikkei 225 closed above the 40,000 mark.

This milestone was not an isolated incident but the latest highlight in a series of positive developments for Japan. Over the past two years, IPO valuations grew exponentially, and private equity dealmaking reached new highs, with deal values tripling the annual average from 2018 to 2022. This stood in contrast to the Asia-Pacific region, where deal volumes fell to their lowest levels since 2014.

Several interconnected forces were at the heart of this momentum. For one, the return of inflation after decades of deflationary pressures prompted capital to flow from deposits to investments. This was supported by the Bank of Japan’s (BoJ) commitment to low interest rates, which weakened the yen and boosted corporate earnings. The fiscal year ending March 2024 marked the third consecutive year of record-high profits for listed companies.

Equally significant were internal developments decades in the making. Corporate governance reforms, launched during the Abe Administration, accelerated as the TSE pressed companies to improve share prices and valuations. “Voluntary, incentivized reforms have gradually reshaped the landscape,” explains Yamaji Hiromi, Group CEO of the Japan Exchange Group, owner of the TSE. “These reforms—supported by market segment restructurings and a focus on equity cost awareness—have delivered visible gains in corporate governance, underpinning sustainable, mid- to long-term value.”

Furthermore, the expansion of the Nippon Individual Savings Account (NISA)—a tax-free scheme designed to shift household savings into financial markets—boosted the domestic investment base, with 10.2 trillion yen of new investments flowing into NISA between January and September 2024.

“The NISA program is beneficial for the Japanese people, especially the younger generation,” says Mikita Komatsu, President of Daiwa Asset Management, a subsidiary of Daiwa Securities and one of the largest asset managers in the country. “It has already encouraged more people to think about investing, penetrating deeper into the general population.”

The Year Ahead

Looking to 2025 and beyond, the factors that fueled Japan’s bull run are expected to grow stronger. While inflation’s initial return was ignited by short-term factors like elevated energy prices, Japan is transitioning to demand-led inflation. With wages rising 5.28% in 2024—the largest increase in 33 years—a virtuous cycle is taking hold.

Yamaji Hiromi
Group CEO
Japan Exchange Group, Inc.

“Japan is now in a new beginning,” says Hirofumi Tamada, President of Ichiyoshi Securities, which specializes in small-to-mid cap stock investments. “For 30 years, deflation made investment unattractive, leading to economic stagnation. However, the situation has changed as inflation has taken hold and the mindset is finally shifting toward investment.”

To sustain this momentum, the BoJ is set to continue its gradual approach to raising interest rates. Following the August market crash triggered by the unwinding of the yen carry trade, the BoJ postponed further rate hikes, underscoring its commitment to maintaining stability and investment appeal. In the aftermath, the Nikkei 225 rebounded at record speed.

Corporate governance reforms are also poised to gain further traction. Over the past decade, these reforms gradually introduced capital efficiency and accountability into Japanese boardrooms. Now, as corporate Japan undergoes a historic generational shift, these initiatives are advancing at a faster pace. With the average CEO age at 64, a younger generation of leaders is stepping in—leaders who have seen firsthand the benefits of stronger governance and are embedding these principles into Japan’s corporate culture.

“The effect that this is having is similar to a snowball: the more it rolls, the bigger it becomes,” argues Mr. Yamaji. “And now it is rolling down a steeper hill than before, with much more speed.”

On top of increased valuations for listed companies, this acceleration is expected to impact the private equity space. “These reforms are pushing companies to divest non-core businesses, which increases deal flow,” explains Masamichi Yoshizawa, Representative Director of The Longreach Group, a private equity firm specializing in mid-cap deals. “While some companies previously regarded divestiture as a failure of management, today’s leaders see M&As as a solution to drive profitability by focusing on their core business, enhance growth, and address succession issues.”

Driven by demand-led inflation, corporate governance reforms, and a generational shift in leadership, Japan is entering a transformative era. As geopolitical tensions and economic uncertainty weigh on other Asian economies, Japan’s combination of structural changes, macroeconomic stability, and increased domestic investment make it a uniquely attractive option for long-term investors. So while the past two years have been historic for Japan’s financial markets, it seems the best is yet to come.

This article is based on interviews conducted by **The Worldfolio**. To learn more, visit: www.theworldfolio.com

DAIWA ASSET MANAGEMENT HELPS INVESTORS NAVIGATE NEW ERA OF OPPORTUNITIES

Japan enters a new era

To many, our world has entered a new era: after years of ultra-loose monetary policy, central banks rapidly raised interest rates, supply chain disruptions led governments to promote the onshoring of critical industries and the rise of digitalization has triggered an AI revolution, unlocking new sectors for investment.

While these shifts are global, Japan has been uniquely affected. The country's low-interest-rate policy weakened the yen and sparked the long-awaited return of inflation, boosting corporate earnings. Economic tensions in China also pushed investors toward safer alternatives, bringing new liquidity into Japanese assets. Together with corporate governance reforms, these trends fueled a historic bull run in Japanese equities.

What does this mean for investors?

As investors look to a future where macroeconomic conditions, monetary policies and technology evolve, a change in strategy is needed. Successfully navigating this landscape requires more than traditional metrics or quantitative analysis. It demands an investment framework that assesses intangible assets, predicts long-term competitiveness, and ensures that management decisions align with emerging technological and economic trends.

Daiwa Asset Management's Strategy

Designing products tailored to this new era is the mission Daiwa Asset Management (DAM) is committed to. Founded in 1959, the company has become a cornerstone of Japan's financial landscape, growing its AUM to over 32 trillion yen as of March 2024. As the core asset management arm of the Daiwa Securities Group, the firm offers a diverse range of products covering Japanese and global securities, including ETFs, REITs, fixed income instruments, and actively managed funds.

In today's investment environment, where stock-picking has become essential to success, DAM distinguishes itself through its Global Multi-Strategy team. This team, composed of senior fund managers with decades of cumulative experience, applies a forward-looking, long-term investment philosophy tailored to the challenges and opportunities of our modern era.

Sei Matsui, Head of Global Multi-Strategy Team

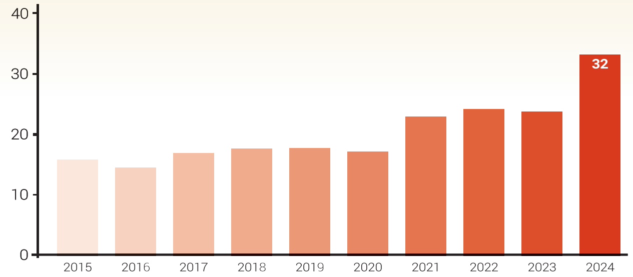
ABOUT THE GLOBAL MULTI-STRATEGY TEAM

The team manages 200 billion yen in assets, focusing on active strategies for domestic and international equities. In addition to Tokyo, the team also has members in Singapore and is actively involved in corporate research from a global perspective, working with the in-house analyst team. Led by Chief Fund Manager Sei Matsui, the eight-member team combines bottom-up and top-down approaches to build long-term growth portfolios, balancing corporate value assessments with macroeconomic trends for higher risk-adjusted returns.

Opportunities in growth stocks investing

Since 2021, value stocks have outperformed growth stocks for consecutive years, driven by persistent global inflation and aggressive monetary tightening by central banks, resulting in a historically wide performance gap. However, with global inflation expected to ease and a shift to low interest rates globally, the market environment will change in favor of growth stocks. In Japan, the Bank of Japan is expected to raise interest rates in the context of overcoming deflation, but the rate increase will probably be limited. Therefore, we believe that growth stocks will also lead the Japanese market, offering investors a timely opportunity to grow their portfolios.

GROWTH IN ASSETS UNDER MANAGEMENT (JPY in Trillions)



Note: Data for each year is as of March. This figure represents the combined total of investment trust, discretionary investment, and investment advisory balances (Estimate includes the investment balance of Daiwa AM's overseas subsidiaries).

Mikita Komatsu, President,
Daiwa Asset Management Co., Ltd.
https://www.daiwa-am.co.jp/english/

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Daiwa
Asset Management

Ichiyoshi Securities is your strategic partner for investing in Japan's small and mid-cap stocks

In 2017, Lasertec, a little-known Japanese maker of inspection devices, introduced a groundbreaking equipment: the first of its kind capable of inspecting EUV photomasks. At the time, Extreme Ultraviolet (EUV) lithography—a cutting-edge technology that enables the production of faster, smaller, and more efficient semiconductors—was on the verge of commercialization.

Twelve months after, the world's largest chipmakers, TSMC and SAMSUNG, began test production using EUV. Fast forward to 2024 and the technology has revolutionized semiconductor manufacturing and made next-generation applications like Generative AI, 5G, and high-performance computing a reality.

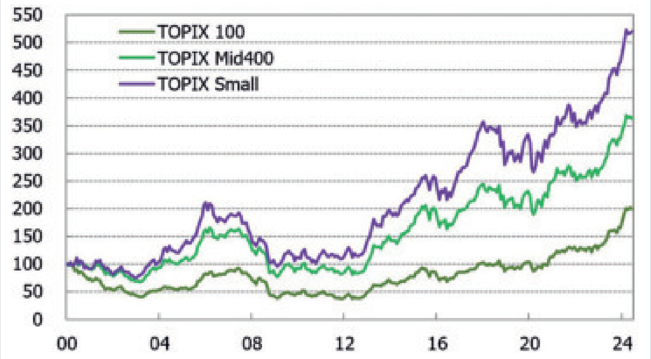
During this time, Lasertec established a monopoly in EUV mask inspection, driving its share price from around 500 yen in 2017 to a staggering 35,000 yen by December 2021. Today, it stands as a cornerstone of the chip supply chain, with its stock price crossing 45,000 yen in 2024.

While Lasertec's rise may seem exceptional, it is not as rare as it appears. Since 2000, the Topix Small and Topix Mid400 indices—which track small and mid-cap stocks on the Tokyo Stock Exchange—have consistently outperformed the Topix100. This trend is driven by Japan's "hidden champions"—small to mid-sized enterprises that dominate niche markets with specialized, high-tech solutions. Amid shifts in semiconductor and automotive production, machine autonomy, and additive manufacturing, these companies are poised to expand across industries, offering investors potential for outsized returns.

However, finding these "hidden gems" is no easy task, as it requires deep expertise, a strong understanding of corporate culture, and direct access to company strategy and management—capabilities not readily available to foreign investors. Addressing this gap is precisely what made Ichiyoshi Securities' success. Founded in 1948, this boutique securities firm specializes in identifying equities with significant mid-to-long-term growth potential.

"Our uniqueness lies in our specialization in small to mid-caps," explains Mr. Hirofumi Tamada, President of Ichiyoshi Securities. "We have more analysts focused on small to mid-cap stocks than any other firm." To solidify its position, the company established the Ichiyoshi Research Institute in 1987. Since then, the Institute's analysts have produced over 3,000 reports annually—a breadth of information unmatched in Japan. "We also conduct face-to-face interviews with company leaders to understand their strategy and direction," adds Tamada.

Differences in mid- to long-term stock price performance in stock price indexes by size (TSE)



Hirofumi Tamada,
President & Representative
Director Officer,
Ichiyoshi Securities Co., Ltd.

ICHIYOSHI SECURITIES

www.ichiyoshi.co.jp/english

At the heart of Ichiyoshi's ethos lies a steadfast commitment to being a "Name-Brand Boutique House" in the financial industry, a philosophy that leads the company to develop products that only it can offer. The latest is *Ichibanboshi*, a fund that invests primarily in undervalued stocks and small to mid-cap companies from across the world. From October 2023 to October 2024, total returns for *Ichibanboshi* exceeded 25%.

For investors seeking diversified investments with more predictable performance, the company recently launched *Mizunara*, a fund that covers stocks and REITs across Japan and global markets, focusing on achieving mid to long-term capital gains while securing high dividend income. As no-load funds, a rare offering among Japan's face-to-face securities companies, *Ichibanboshi* and *Mizunara* are advantageous products for investors in terms of cost.

Product diversification is a core strategy at Ichiyoshi Securities, whose focus centers on sustainable growth. Unlike traditional securities firms, which rely on brokerage commissions, Ichiyoshi has shifted to a "stock-type business model", earning revenue from trust and wrap account fees.

"Since 2000, we have focused on increasing our customer assets under custody and enhancing the management of our customers' assets," explains Mr. Tamada. "Because our uniqueness lies in offering mid-to-long-term investment strategies through personalized, face-to-face communication, having the confidence to shift our business model demonstrates that long-term retention is both beneficial and advantageous."

Thanks to this specialization strategy, Ichiyoshi's customer assets under custody have grown from 400 billion yen to 2 trillion yen over the past 20 years. The company's medium-term management plan, "3·D," which runs until March 2026, now aims to achieve 3 trillion yen in customer assets under custody.

As technological advancements continue to reshape industries, more success stories like Lasertec's are set to emerge. With its deep expertise, specialized research capabilities, and commitment to long-term growth, Ichiyoshi Securities offers investors a strategic partner to navigate this dynamic landscape and to uncover Japan's next "hidden gems."

SPONSORED CONTENT

Strategic focus and long-term relationships fuel The Longreach Group's success in booming PE market

With more than 20 years of experience in mid-cap deals and a well-defined investment strategy, The Longreach Group has emerged as one of the clear winners in Japan's private equity boom.

Japan's private equity (PE) market has emerged as a rare bright spot in the global investment landscape. While M&A activity globally faltered, Japan recorded a 23% year-over-year increase in deal value in 2023, reaching $123 billion. The country now leads Asia-Pacific's PE market, capturing 30% of the region's total deal value—a sharp rise from 7% in previous years. The momentum has carried into 2024, with Japan-related M&A volumes growing another 20% in the first half of the year.

This growth stems from a variety of factors. Japan's low interest rates and weak yen not only created fertile ground for investments, but also attracted foreign capital, especially from Asia-Pacific investors wary of China. More importantly, macroeconomic shifts, regulatory reforms, and a changing corporate mindset have further fueled dealmaking opportunities.

Corporate governance reforms introduced a decade ago have driven transparency and efficiency. Updated Tokyo Stock Exchange (TSE) rules and pressures to enhance valuation have prompted companies to divest non-core assets, delist, or seek partners—prime opportunities for private equity. The government also strengthened the M&A environment with guidelines requiring boards to consider unsolicited offers and hostile takeovers. Decades-old cross-shareholdings insulating firms from takeovers are unwinding, creating openings for activists. Meanwhile, a generational shift has left nearly 1.5 million family-owned firms without successors, positioning private equity as a solution to pressing challenges.

Amid this thriving market, The Longreach Group has emerged as a clear winner. Founded in 2003, the firm has spent two decades refining its mid-cap investment strategy, focusing on corporate divestitures, founder successions, and bolt-on acquisitions. From transforming McDonald's Japan to achieving a high-profile exit with Quasar Medical—winner of the '2023 Exit of the Year' in the 'Mid Cap' category by the Asian Venture Capital Journal —the firm has built a standout track record.

Mark Chiba, Group Chairman and Partner (left),
Masamichi Yoshizawa, Representative Director and Partner (right)

"Our investment strategy is crystal clear," explains Masamichi Yoshizawa, Representative Director and Co-founder. "Specific deal types, mid-cap focus, and control buyouts across three areas: consumer businesses, industrial technology, and business services."

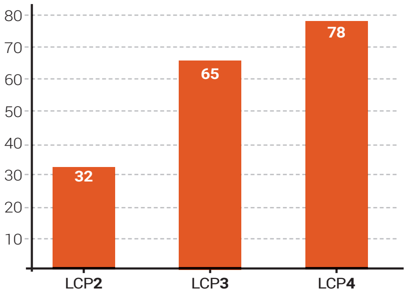
Part of Longreach's success is owed to its focus on the mid-cap segment, which provides the company with a stream of opportunities. "Less than 10% of the dry powder in Japan flows to the mid-cap space," explains Mark Chiba, Group Chairman and Co-founder. "Our space has more deal flow relative to available capital."

To expand in this segment, the firm offers mid-cap companies something many cannot: international expertise. Based in both Tokyo and Hong Kong, Longreach is a Japan-focused firm with distinctive global and cross-cultural capabilities, a strong advantage in a market where domestic competitors lack global experience, while international ones centralize decision-making offshore.

The company's deep understanding of the Japanese market also allows it to implement a distinctive sourcing strategy. Rather than chasing auctions, Longreach dedicates years to cultivating trust with target companies—an approach perfectly suited to Japan's business culture, where relationships are paramount. "In our market, a lot of the decision-making isn't just about pricing, but about finding the right partner to work with," says Mark. "Our ability to nurture long-term relationships and avoid auctions is a competitive edge. Notably, our last four deals have been exclusive."

The firm's latest fund, LCP4, exemplifies its continued success. Closing with commitments of ¥78 billion—up from ¥65 billion in its predecessor fund—LCP4 reflects the confidence of investors in Longreach's disciplined and diversified approach. "LCP4's three thematic areas naturally hedge against risk," explains Masamichi. "Industrial technology benefits from a weaker yen due to exports, while the consumer sector thrives on stable domestic conditions. Business services, being highly localized, remain unaffected by currency fluctuations, providing natural hedges against economic and currency shifts."

Growth in commitments (JPY in billions)



As Japan's PE market expands, The Longreach Group is poised to lead the mid-cap segment. Its strategic focus, relationship-building, and global connectivity ensure it thrives amid competition while unlocking new economic value.

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PHOTOGRAPH BY LISA SORGINI FOR BLOOMBERG BUSINESSWEEK

For couples struggling to build a family, egg donors around the world offer hope ▷ 66

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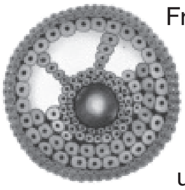
Inside the Global Trade in Human Eggs



From India to Taiwan, Argentina to Greece, women are providing this increasingly valuable resource, sometimes unwittingly, to a booming fertility industry. In a special *Bloomberg Businessweek* investigation, their interwoven stories illuminate the lucrative, largely unregulated business of helping families have children 66

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Exit Strategy Can you guess which of these priciest prices is right? 116

Sticker Shock Answers

A. Merger **B.** IPO **C.** Sports team **D.** Yacht **E.** Athlete **F.** Body of work **G.** Painting **H.** Car **I.** Sculpture **J.** Jewel **K.** Watch **L.** Shoes **M.** License plate **N.** Shirt **O.** Dress

Contributors

Seven Bloomberg News reporters and a freelancer led a yearlong investigation of the human egg trade.

● **Natalie Obiko Pearson**, a senior investigative reporter based in Tokyo, reported from Japan and India.

● **Jessica Brice**, a senior investigative reporter based in São Paulo, reported from Argentina, the US and Australia.

● **Susan Berfield**, a senior investigative reporter based in New York, reported from Southern California, as well as from New York and Denver.

● **Vernon Silver**, a senior investigative reporter based in Rome, reported from Italy and Greece.

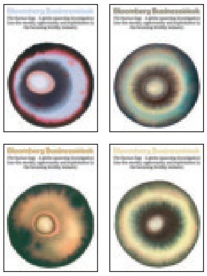
● **Kanoko Matsuyama**, a global business reporter based in Tokyo, reported from India and Japan.

● **Cindy Wang**, the deputy bureau chief in Taipei, reported from Southern California, Taiwan and Hong Kong.

● **Sinduja Rangarajan**, a senior investigative data reporter based in San Francisco, worked to quantify and map the global egg trade.

● **Fani Nikiforaki**, a journalist based in Chania, Greece, reported from there.

Cover



We worked with French artist Magali Cazo to create four abstract iterations of the human egg. Primarily composed in ink and paint on paper, her depictions are vivid, organic and arresting—showing the egg to be as our cover story portrays it: a precious resource.

■ ILLUSTRATION BY MAGALI CAZO

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2025

AN OPTIMIST’S GUIDE TO A CHAOTIC WORLD

BY BRAD STONE

Proponents of scientific expertise, international cooperation, free trade—as well as anyone hoping for a calm, measured competence emanating from Washington, DC—are probably viewing 2025 from under the dining room table with something close to all-consuming dread. On Jan. 20, Donald Trump will reassume the US presidency, and most of the cabinet appointments that have so unsettled the political establishment in the weeks leading up to that date will be embraced by the Republican-controlled Senate.

But negativity and despair are no way to bring in a new year. In two of his books, *The Better Angels of Our Nature* and *Enlightenment Now*, Harvard University psychologist Steven Pinker makes the case for looking past the hysteria of daily headlines to recognize areas of substantial human progress. On measures such as extreme poverty, infant mortality and human rights, despite occasional setbacks like wars and pandemics, things are getting dramatically better, not worse.

Trump, Pinker tells me, “was aided and abetted” in his depiction of a country in decline by the news media, which usually overlooks positive trends and “deliberately puts a negative spin on news,” such as with a headline on falling unemployment that might highlight how some people still have problems finding work.

Pinker is a fan of independent websites that use data to illustrate broad trends and generally portray a more positive view. The Up Wing, an Australian website founded in 2024, recently reported that vaccines have reduced infant mortality by 40% over the past half-century and that global economic growth has lifted more than 1.3 billion people out of extreme poverty.

Recipients of the weekly newsletter *Fix the News* have learned that Africa has reduced deaths from infectious disease by 42% since 2015, that fatality rates from drug overdoses in the US have fallen for seven months straight and that solar power installations are accelerating around much of the world and global capacity recently hit 2 terawatts.

“Our view is that the world is bad but that it’s better in most ways than people imagine. It’s probably the best time ever to be alive,” says Keith Moore, head of editorial at the Gapminder foundation, which is headquartered in Stockholm. The organization’s site quizzes readers to reveal their misperceptions on migrants (only 15% are refugees who flee their homes), population growth (it’s slowing), beef consumption (humans eat more fish) and other issues. “One place they do overestimate progress is on climate. People think we are transitioning faster than we actually are,” Moore says.

Even those who typically read climate news with a deep sense of foreboding can find a few reasons for hope. More than 40% of the world’s electricity came from zero-carbon sources in 2023 for the first time, according to BloombergNEF. Thanks to a sagging economy and rapid adoption of clean energy, the carbon emissions from China, responsible for 30% of 2023’s global total, may have already peaked.

Trump and his congressional allies are likely to withdraw the US from the Paris Agreement on climate change and prod energy companies to increase fossil fuel production. But they’re also likely to spur the development of nuclear power in the US, a technology that makes some people squeamish but which many scientists think must play a major role in driving the world toward decarbonization.

Several physicians are even finding reasons to be hopeful about public health. Robert F. Kennedy Jr., nominated to lead the Department of Health and Human Services, is likely to campaign against ultraprocessed foods that have contributed to high obesity rates, even as he rails dangerously against vaccines and fluoride in drinking water. “I think there’s been too much negativity. What he’s really doing is questioning things,” says Shebani Sethi, an associate professor of medicine at Stanford University, who notes that life expectancy in the US now lags Europe’s after their being even 50 years ago. “It would be such a win for us to start changing the food supply.”

It’s also quite possible that Trump, with Elon Musk’s help, could cut regulations, boost business activity and make the government more efficient. This isn’t meant to dismiss the consequences of Trump’s promised mass deportations or the long-term significance of another round of his judicial appointments. It’s simply a case for holiday cheer for those who might need an extra helping of it.

Because one can’t hide under the dining room table forever. Ⓑ

ILLUSTRATION BY CHRIS HARNAN

TRUMP TORCHES THE ECONOMIC PLAYBOOK

■ THE GLOBAL ECONOMY AND FINANCIAL MARKETS WILL FEEL THE HEAT AS THE PRESIDENT REWRITES RULES ON TRADE, DEBT AND ALSO SECURITY

■ BY TOM ORLIK

Donald Trump won a second term in the White House by promising a bonfire of the verities—the truths that wonks in economic and foreign policy circles hold sacred. Free trade is out, protectionism is in. Worrying about the debt is out, tax cuts are in. The US security guarantee is out, do-it-yourself defense is in.

The established order Trump wants to overturn hasn't covered itself in glory. Under President Joe Biden, inflation in the US soared close to 10%, partly as a result of overdone fiscal stimulus. Decades of free-trade orthodoxy have frayed the blue collars of US factory workers. Wars in Ukraine and Gaza have called into question Washington's continued leadership in world affairs.

The blaze will take a while to get going, for the simple reason that any administration—even one with a working knowledge of Washington—can only move so quickly to implement its to-do list. For the year ahead, Bloomberg Economics forecasts global growth at an unremarkable 3.1%, unchanged from 2024. Inflation is set to slow to 3.4% from 6%, with readings in the US and other advanced economies drifting back to the 2% central banks have long targeted.

Still, the global economy—along with the financial markets—is going to feel some heat.

There aren't a lot of things economists agree on. One is that trade is good. By sharpening competition and encouraging specialization, it drives productivity higher, boosting growth and lifting incomes. As a bonus: Trade helps keep a lid on inflation in developed countries by giving their consumers access to lower-priced goods made by workers in China, Mexico and other places.

Yet to quote from the title of a 2023 book by Robert Lighthizer, the architect of tariffs in Trump's first term, no trade is free. Lighthizer writes evocatively about how offshoring hollowed out the Ohio steel town where he grew up. The exodus of manufacturing jobs has been a major drag on working-class incomes. China, meanwhile, leveraged access to global markets to transform itself into the world's No. 1 exporter and a geopolitical rival to the US.

Dashing to the free-trade barricades, economists—including those at Bloomberg Economics—have fired their modeling artillery at Trump's pledges of 60% tariffs on China and 20% on the rest of the world. Tariffs at those levels would be historically elevated, and so, unsurprisingly, our models predict a major blow to US gross domestic product and a jump in inflation.

In reality, and drawing on the experience of Trump's first term, tariffs are likely to stop short of his campaign-trail pledges. They'll likely be targeted, not across-the-board, and delivered in stages instead of all at once. For 2025 that means a modest impact on the US

■ ILLUSTRATION BY CHRIS HARNAN ■ DATA: BLOOMBERG ECONOMICS. AS OF DEC. 10, 2024

and China, building to a more significant hit to growth—spilling over to Mexico, Canada and other key trade partners—in 2026.

Nevertheless, something important has changed. Even in the best-case scenario, the swing from free trade to protectionism is bad news for the global economy. If Trump goes full throttle on tariffs, everything from Apple Inc.'s Asia supply chain to General Motors Co.'s made-in-Mexico autos are at risk.

Another idea most economists agree on: Big deficits are bad news. Sure, in a downturn, opening the public spending taps to pump up demand is a good idea. But in normal times, outside war or recession, borrowing should be kept under control.

The Biden administration is already playing fast and loose with fiscal policy. The deficit for 2024 is projected to come in close to a nosebleed-inducing 7% of GDP, a consequence of too much stimulus during the pandemic and failing to rein in spending fast enough after the emergency was over.

Trump is promising to play faster and looser. He and his advisers are touting a classic supply-side recipe, with a dash of protectionism thrown in. First, cut taxes—stoking animal spirits. Second, raise tariffs—offsetting some of the lost tax revenue. Finally, slash public spending—closing the remainder of the gap.

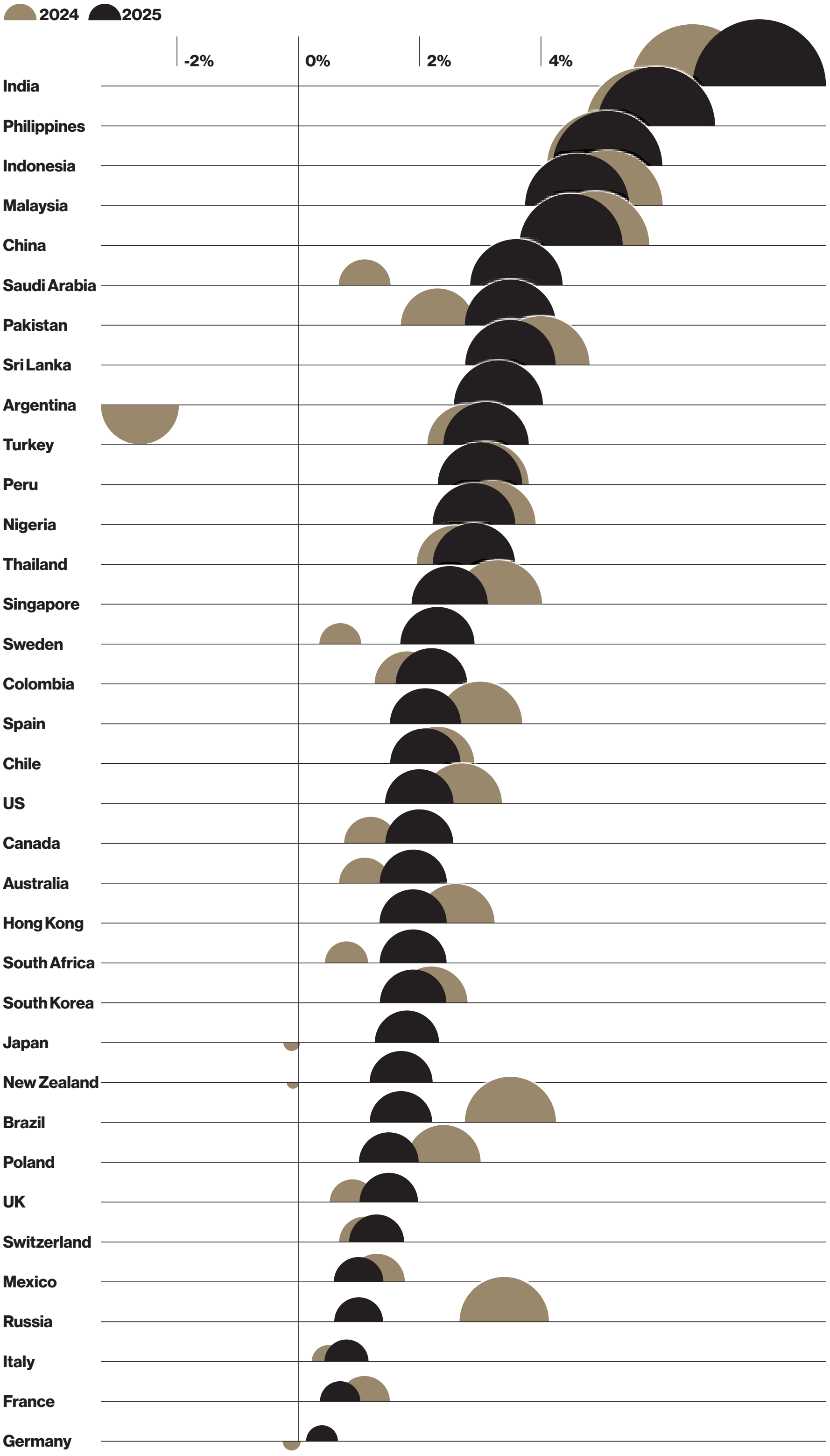
The trouble is, tax cuts are easy to deliver; raising tariff revenue and cutting public spending are much harder. Hiking duties enough to raise significant sums risks a bigger blow to growth and hike to inflation—as well as discouraging imports and so actually reducing revenue. Elon Musk and Vivek Ramaswamy have been charged with finding $2 trillion in savings in the federal budget. It's a tall order: The lion's share of spending goes to defense, Social Security and Medicare, sacred cows that even Trump won't turn into a red-meat sacrifice.

US public debt is already rising fast, climbing from 79% of GDP in 2019 to close to 100% in 2024. With Trump promising to extend tax cuts from his first term—currently set to expire in 2025—there's a real risk it continues to race higher. ▶

THE MACRO OUTLOOK

■ SOUTH ASIAN ECONOMIES WILL LEAD THE PACK ON THE GROWTH FRONT IN 2025, WITH EUROPEAN ECONOMIES BRINGING UP THE REAR

Year-over-year change in real GDP, Bloomberg Economics estimates



◀ Bond vigilantes are already punishing Washington for its borrowing excesses. The yield on 10-year US Treasuries almost touched 4.5% in November, up from 3.6% in September. And with Treasury borrowing costs being the global benchmark, a slew of other countries, including Chile, Egypt and South Africa, will have a harder time managing deficits and debts.

On security, allies in Europe and Asia count on the US as a guarantor of peace and stability. Pax Americana, paid for with US blood and treasure, has been a defining feature of the post-World War II global order. Trump's "America First" instincts mean it can no longer be taken for granted. In Ukraine his pledge to end the war within 24 hours of taking office threatens to force Kyiv into an unequal negotiation with Moscow. In Taiwan his transactional approach raises new questions about the security of a crucial node in the semiconductor supply chain. For NATO allies his threat to withhold support to any country not increasing its defense spending is set to add to some European nations' already considerable debt stress.

There is, to be sure, an internal logic and an intuitive appeal to Trump's proposals. Considered as a package aimed at reshoring the benefits of US economic dynamism (and ignoring for a moment the costs), raising tariffs, cutting taxes and forcing other countries to pay for their own defense makes sense.

There's also the hope that voices of reason in the administration—with Treasury Secretary nominee Scott Bessent the current vessel for investors' hopes—and the daily reality check from the markets will prevent policy going too far off the rails. Trump might be pitching a 60% tariff on China and massive unfunded tax cuts. Will he deliver them if the S&P 500 tanks and Treasury yields spike in anticipation? Presumably not.

Still, most people in economics and diplomacy would agree that free trade, fiscal responsibility and the US security guarantee have delivered significant benefits for America and the world. Trump disagrees and promises to forge a new path. In the year ahead, we'll find out who's right. Ⓑ

NORWAY DEFEATS THE COMBUSTION ENGINE

■ ALMOST ALL OF ITS 2025 CAR SALES WILL BE ELECTRIC, THANKS TO LAVISH INCENTIVES PAID FOR BY OIL EXPORTS

■ BY KARI LUNDGREN

In 2017, Norway set a goal of eliminating sales of fossil-fuel-powered cars by 2025. At the time it seemed like little more than a feel-good fantasy to soften the image of a government led by Erna Solberg, a conservative advocate of oil production who'd earned the sobriquet "Iron Erna." But as the deadline approaches, it turns out that the Nordic country will come within a whisker of meeting that milestone.

Sure, the achievement has been facilitated by the country's fossil fuel exports—$108 billion in 2023—but it stands out against a background of retreating electric-vehicle sales across Europe and faltering progress in the US, where EV adoption is in danger as Donald Trump returns to power. The initial target was "utopian," says Harald Andersen, head of Norway's car import association, which represents companies ranging from Chinese upstarts to German stalwart Volkswagen AG. "We set ambitious goals," he says, "but those goals were followed up with the right policies."

Those policies are mostly incentives, which date to 1994, when the Think City—a boxy little EV that made its debut at the Lillehammer Winter Olympics—was exempted from registration taxes. As the technology came into its own a decade or two later, successive governments piled on perks for EV drivers: free parking, access to bus lanes and exemptions from tolls, road fees and value-added taxes.

While Norway has started unwinding some benefits—since 2023, for instance, buyers of pricier models have had to ▶

▼A CIRCLE K EV STATION UNDER CONSTRUCTION

■ PHOTOGRAPH BY THOMAS EKSTROM FOR BLOOMBERG BUSINESSWEEK

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Weights in the S&P 500 Top 20 Select index as of 09/24/24: AAPL: 15.96%, MSFT: 14.89%, NVDA: 13.13%. Subject to change.

◀ pay some VAT—the most important ones remain, making EVs a mainstay on Norwegian roads. As a result, repair shops are investing in high-voltage training and facilities suitable for working on batteries. Filling station chains such as Circle K are ripping out gas pumps to make room for electric plugs. And grid operators are buried under applications for the higher-voltage links needed for charging points.

EVs initially took root in cities such as Oslo and Bergen, but they're now popping up in outposts as far-flung as the Arctic island of Svalbard and Kirkenes, a few kilometers from the Russian border. In September, batteries powered at least 90% of the new cars sold in every county of Norway, and as much as 98% in some places, according to the Road Federation. Even so, EVs today make up only a quarter of cars on the road and won't likely reach half before 2030.

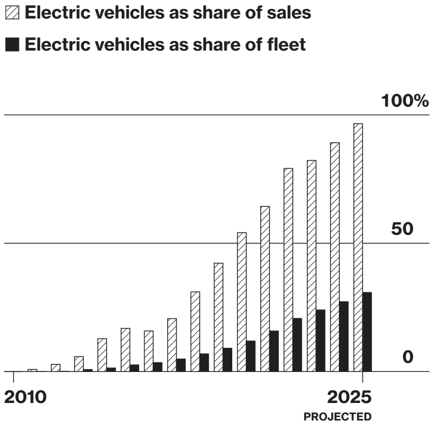
▼CHARGERS AT A CIRCLE K SOUTH OF OSLO

CIRCLE K
300kW

There are now about 170 electric-powered models to choose from in Norway. Tesla has surpassed Toyota and VW to become the bestselling brand. Chinese manufacturers such as Xpeng, BYD and Nio are jostling for prime real estate in downtown Oslo. And dealers woo customers with hot dog parties and family outings to an alpaca farm.

As other countries seek to hasten the shift away from fossil fuels, they might well adopt Norway's strategy of offering sweeteners but avoiding an outright ban on combustion cars. Although gas-guzzlers can still be sold in 2025 and beyond, given the scale of the incentives—which have meant billions of dollars in lost tax revenue—EVs have a far lower cost of ownership.

A NORWEGIAN EV BOOM



The initial appeal of EVs was largely restricted to the most environment-conscious Norwegians, but that's changing as trust in the technology grows and charging options multiply, says Christina Bu, secretary general of the Norwegian EV Association. Early on, it was common for buyers to keep their combustion cars as backups, but today almost two-thirds of EV households are battery-only. "People come to me with stars in their eyes and say they never wanted an EV, but now they are so proud to own one," Bu says. "There is a lesson there for other countries." Ⓑ

■ HOT SEAT: OLIVER BLUME *CEO OF VOLKSWAGEN* MAKOTO UCHIDA *CEO OF NISSAN*

Even as the transition to battery-powered cars is hitting speed bumps in various markets, the shift remains inevitable, with tech-savvy Chinese manufacturers poised to benefit the most while the erstwhile giants of the industry fall behind. This is placing immense pressure on Volkswagen AG's Oliver Blume and Nissan Motor Corp.'s Makoto Uchida.

Faced with sagging demand for electric vehicles in Europe, intensifying competition in China and struggles at Audi and Porsche—luxury nameplates that plump up VW's margins—Blume is leading a push to shut three German factories and lay off thousands of workers. That's sparked a standoff with the company's powerful unions, which have amped up the pressure with temporary walkouts.

The two sides are aiming to reach a deal by Christmas. Even if that happens, VW faces huge challenges. A new Trump White House is threatening tariffs that could sharply lift sticker prices for the luxury lineups, still mostly made in Germany. And after the European Union slapped stiff tariffs on Chinese-made EVs, some of Volkswagen's brands—particularly Porsche—risk retaliatory levies. That could hammer the sports-car maker's already dwindling sales.

Despite the billions VW has spent on homegrown software for its EVs, its chief executive officer has acknowledged that the code isn't ready for prime time. To bolster VW's portfolio, he's plowing more than €6 billion ($6.4 billion) into development deals with US startup Rivian Automotive Inc. and China's Xpeng Inc. But until cars with the new tech start reaching showrooms in 2026, VW will be peddling electric models based on older technology. If consumers opt for rivals instead, the German company risks failing to meet increasingly strict EU standards for fleet emissions.

At Nissan, meanwhile, Uchida introduced a last-minute rescue plan after the company's net income plummeted 94% for the first half of the fiscal year ending in March 2025, forcing it to lower its full-year forecast by 70%. The CEO in early November said he'll cut 9,000 jobs (about 7% of the company's total workforce), slash production capacity by 20% and forfeit half of his own salary. Days later, the pressure increased when activist fund Effissimo Capital Management Pte Ltd. bought a 2.5% stake in Nissan.

The company's problems have their roots in the tenure of former Chairman Carlos Ghosn, who revived the then-struggling manufacturer by cutting costs, boosting capacity and rolling out a slew of models. That worked for a while, but to maintain the momentum and keep profits from sagging, Uchida had to lay on higher incentives for dealers and fleet sales while leaving its lineup largely unchanged.

American car buyers are backpedaling on EVs but rediscovering hybrids. Nissan has suffered from a dearth of both: Toyota Motor Corp. and Honda Motor Co. have replaced or refreshed most of their models in North America in the past year or two, but Nissan's last major update came in 2021. "Meeting our sales goals will be a challenge," Uchida told investors in November. "We need to rebuild our strength so we can pivot to a more positive path." Ⓑ —*Monica Raymunt and Nicholas Takahashi*

■ PHOTO: TERJE BORUD ■ ILLUSTRATION BY FROMM STUDIO (2) ■ DATA: BLOOMBERG, OFV. 2024 AS OF NOVEMBER

PRICES WILL VARY

■ DYNAMIC PRICING WILL GO FAR BEYOND AIRFARES AND HOTELS, TO MANY CONSUMERS' DISMAY

■ BY AMANDA MULL

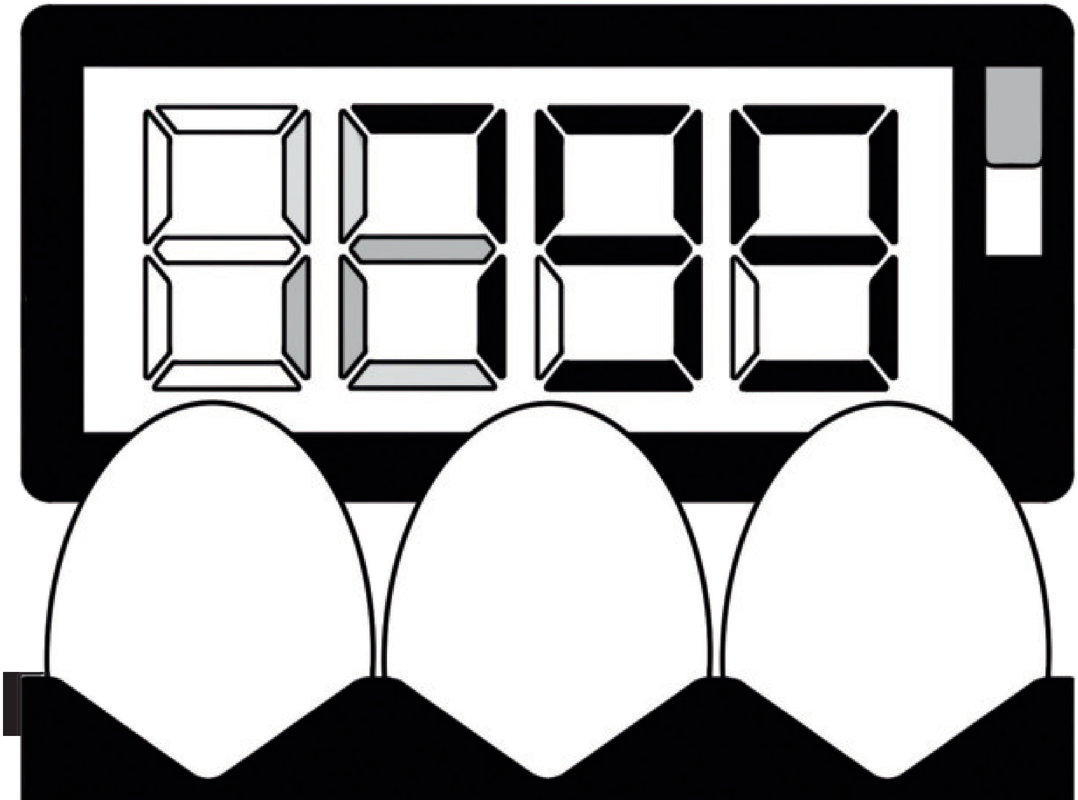
If rental cars, hotel rooms, ride-share trips, airfares and concert tickets have anything in common, it's certainly not the overwhelming confidence Americans feel when booking and buying them. Prices for these kinds of purchases fluctuate from one minute to the next—or, in many cases, from buyer to buyer. It's not that fair prices don't exist, but it can be impossible to feel sure you're getting one. You have no idea what anyone else might be paying for the same flight or seat or midsize sedan, or what you might have paid yesterday or could pay tomorrow. The possibility that you're being taken for a fool (or outright discriminated against) looms every time you click "Buy."

Put another way, no regular person has ever sat back and thought, "You know what? I want more of my interactions with the economy to feel like renting a car." Nevertheless, a suite of tactics collectively known as dynamic pricing has already crept into an expansive array of consumer transactions. Through dynamic pricing, retailers algorithmically adjust prices, sometimes in real time, using whatever data they can scrape together—the time of day, your location, the product's popularity and inventory level, competitors' prices, even whether you've visited the product page before. And this practice is likely to become much more widespread in pretty short order.

According to Dipanjan Chatterjee, a vice president and principal analyst at Forrester Research Inc., consumer businesses that have been profit-taking by raising prices over the past few years can't just keep marking up their products the old-fashioned way. Americans seem to have been pushed to their limit, financially and psychologically, by the highest inflation in four decades; additional broad markups would risk alienating customers and tanking revenue, Chatterjee said in an email. "I fully expect companies will turn to more sophisticated pricing mechanisms like dynamic pricing to boost profitability," he wrote.

Dynamic pricing—a blanket term that covers many slightly different tactics, including surge pricing, demand pricing and personalized pricing—is easiest to implement online, and plenty of internet retailers have been using it in some capacity for years. These merchants have a significant advantage in doing the kind of large-scale, fine-grained data collection that makes it possible to deploy algorithmic models to maximize purchases. Amazon.com Inc. is generally regarded as the retailer with the most sophisticated pricing operation. Not only does the megaretailer reprice its own products constantly, but it also gives its army of third-party sellers access to tools that can adjust their listings' prices automatically to compete with other sellers or better adapt to the changing preferences of Amazon's internal search.

Thanks in part to the investment dollars pouring into seemingly every vaguely artificial-intelligence-tinged business, third-party software vendors have sprung up to offer similar capabilities to everyone from your landlord to your local ice cream shop. Plenty of them seem ready to give it a shot: In a recent survey of 755 American restaurant operators, the ordering platform Toast



■ ILLUSTRATION BY MOJO WANG

found that 70% were “very or extremely interested” in implementing dynamic pricing that would raise or lower prices depending on foot traffic or order volume. (Only 7% reported currently using the practice.) The proliferation of things such as plug-and-play order management software and Square’s tablet-based checkout systems has made it feasible for many more types of businesses to collect basic data on customers and use it to quickly adjust prices, dynamically or not. For larger brick-and-mortar retailers, increasingly popular digital shelf-labeling systems provide similar capabilities across thousands of products.

The problem—or one of them, anyway—is that customers hate dynamic pricing almost as much as they hate normal price increases. When Wendy’s Co. announced it would test demand-based pricing at some of its restaurants in 2025, the internet blowback was so swift and forceful it ditched the plan entirely. And when news got out this past summer that Walmart Inc. and Kroger Co. were replacing paper price tags with digital shelf labels, both retailers had to publicly promise they had no plans to use them to raise prices indiscriminately.

Ticketmaster’s demand-based pricing has provoked the ire of fan bases as disparate as Taylor Swift’s and Bruce Springsteen’s. When Oasis announced its long-awaited reunion tour dates in the UK, prices soared so high that the band refused to allow Ticketmaster to use the same tactic on American dates, calling it “an unacceptable experience for fans.”

The Federal Trade Commission has taken notice of these tactics, initiating a study last summer on how a handful of popular pricing services use surveillance data to manipulate how much they charge people. But as it stands, dynamic pricing is largely regarded as legal, as long as sellers don’t use protected characteristics such as race or gender to determine what buyers will pay. The algorithmic nature of dynamic pricing also gives sellers plausible deniability; who’s to say which data points were dispositive? The main risk for retailers is one of perception.

“Nontraditional pricing strategies like dynamic pricing have a marketing problem,” Forrester’s Chatterjee says. He points to Uber Technologies Inc.’s clumsy surge pricing—the flavor of dynamic pricing that people hate most virulently—as one source of broad public animus toward the idea.

It’s watching a formerly predictable purchase become less fair before their eyes that really grates on people. No one likes that airfares are higher around the holidays or that beachside hotels are more expensive during the summer, but it’s predictable enough that people generally accept it. Having to do some form of that calculus every time you buy groceries is an entirely different kind of budgeting burden.

Whether dynamic pricing does lead to the higher prices everyone is afraid of is a more complicated question. When it’s used well, pretty much everyone agrees that it results in larger and more consistent profits for merchants, who are able to maximize margins and volumes simultaneously in a way that’s much harder with static prices. By definition, that means at least some customers are getting good deals. A 2021 study of European grocery stores found that those using dynamic pricing through digital tags both improved margins for retailers and reduced the average cost of goods sold to consumers, especially for perishable products, which could be more effectively discounted as expiration dates neared.

Some people in the pricing industry have tried to encourage retailers to adopt dynamic pricing in ways that paint the practice in a more positive light. In an editorial in the trade publication *Restaurant Dive*, Catherine Tabor, chief executive officer of the food service software company Sparkfly, urged restaurants to try out “dynamic offers”—essentially, a spontaneous, data-driven happy hour to boost foot traffic during slow periods (which was, of course, why analog happy hour was invented in the first place), instead of surge pricing that penalizes shoppers during high demand. Chatterjee was less optimistic about the possibility that companies would use new pricing methods purely to offer better value to their customers. “Surge pricing is a dirty word,” he says. “Companies are trying to figure out how to do it without saying it.” Ⓑ

THE BILLION-DOLLAR CARP PLAN

■ THE US GOVERNMENT IS SPENDING BIG TO PROTECT THE GREAT LAKES FROM THE INVASIVE FISH

■ BY LAURA BLISS

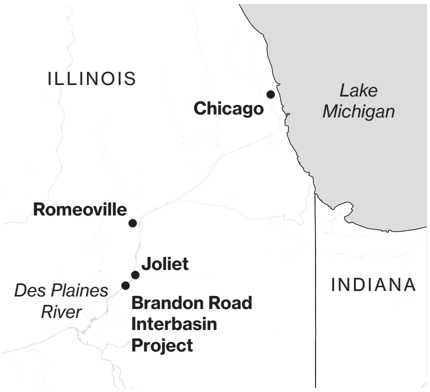
Standing on a windy bridge over the Des Plaines River in Joliet, Illinois, Scott Whitney shows off a diagram of what he calls the gauntlet. Pictured is a half-mile-long underwater obstacle course for fish that runs upstream toward Lake Michigan. A curtain of turbulent bubbles is followed by a bank of speakers emitting ear-splitting noise, then a wall of electrified water and finally a navigation lock designed to flush downstream any organisms that make it that far. “It’s hell for the fish,” says Whitney, chief of the project management branch for the US Army Corps of Engineers’ Rock Island District.

He’s focused on one in particular: invasive carp, which have menaced Midwest rivers for decades. Whitney’s gauntlet—officially known as the Brandon Road Interbasin Project at the Brandon Road Lock and Dam—aims to stop the carp from getting any closer to Lake Michigan. Scientists deem this spot the fish’s likeliest entry point into the Great Lakes and its fishing industry, which the Great Lakes Fishery Commission values at $5.1 billion annually. The ▶

◀ Corps plans to start building the BRIP in January at a cost of $1.15 billion, with Illinois, Michigan and the federal government splitting the tab.

The barrier will be the most ambitious defense against the carp in America. Their deep hunger for plankton has wreaked havoc on ecosystems, effectively pushing out native fish throughout the Mississippi and its tributaries. In addition to screwing with the food chain, the carp are despised by fishermen. Silver carp–one of four closely related species native to different parts of Asia–sometimes leap into the air at the sound of an outboard motor, a stress reaction that has knocked anglers unconscious and shattered facial bones.

Already, state and federal governments have poured hundreds of millions of dollars into control measures, including electric barriers, harvesting programs and even campaigns aimed at chefs and home cooks. But none will attempt to seal off the carp's potential passage into the Great Lakes with this level of investment. "There really is no other project, probably in the history of humankind, that has put so much time, money and effort into trying to curb the movement of an invasive species," says Jim Garvey, a professor of zoology and director of the Center for Fisheries, Aquaculture and Aquatic Sciences at Southern Illinois University.



▼ JUMPING CARP IN THE FOX RIVER

The US's struggle against invasive carp started with a well-meaning blunder, as journalist Dan Egan writes in *The Death and Life of the Great Lakes*. In the 1970s government scientists in Arkansas were testing to see if carp imported from Asia could, as an alternative to chemicals, clean up algae from catfish farms and sewage lagoons. Eventually funding ran out, and the research stopped. But some of the experimental fish were released, finding their way into surrounding waterways. The scientists thought the fish wouldn't breed in the wild. They were wrong.

As they've migrated up the Mississippi River basin, two species have had a particularly suffocating effect. Silver and bighead carp can live for decades, eating pounds of plankton every day. Studies have found silver carp make up more than 90% of the aquatic biomass in sections of the Mississippi.

In 2002, as part of a broader congressional effort to control invasive aquatic species, the Army Corps installed its first electric barrier to fend off non-native fish in the Chicago Ship and Sanitary Canal, the critical connection point between the Mississippi basin and the Great Lakes. In a section of the canal in Romeoville, Illinois, about 10 miles upriver from Brandon Road, an underwater carpet of electrodes emits an electrical field designed to deter carp that swim near it. Over the past two decades, the Corps has spent about $286 million adding similar barriers in Romeoville and tweaking their voltage levels.

How effective these have been is a topic of controversy. No carp has been documented passing through them. But a handful of carp and a lot of their DNA have been found upstream of the barriers, close to Lake Michigan. After one DNA discovery in 2009, Michigan sued the Corps and Illinois, demanding the canal be closed because of the carp's threat to Great Lakes fisheries. Such a closure would've blocked the small amount of barge traffic that uses the canal to travel in and out of Lake Michigan and forced Chicago to rethink its wastewater disposal. Debate raged over what closure would cost: The Corps pegged it at $18 billion; advocacy groups put it closer to $2 billion.

The case wound its way to the Supreme Court, which eventually rejected the closure request. But the sense of emergency was real. "'Terminator' carp threatens Great Lakes," the *Guardian* proclaimed in 2010. Then-President Barack Obama nominated a carp czar to oversee eradication efforts.

■ PHOTO: RYAN HAGERTY/USFWS ■ ILLUSTRATION BY TYLOR MACMILLAN

Amid the Great Carp Alarm, Congress directed the Corps to study additional options to prevent invasive species from spreading between the Mississippi basin and the Great Lakes. In 2019 the chief of the Corps signed off on the Brandon Road project. Its deterrents are crafted to target carp at different life stages, Whitney says.

Since most of the project is underwater, the view from the bridge where Whitney is showing off the plan won't be that different when the BRIP is complete. The changes will be below the surface: The channel is being reconstructed to eliminate fish hiding spots or food sources and to shore up the structural integrity of the 91-year-old navigation facility. The plan is to install the BRIP's electrical barriers with superior insulation to the ones operating in Romeoville, which have been known to throw out stray voltage. The noise from the underwater speakers will sound a little like a fork caught in a lawn mower.

Biologists are optimistic that the BRIP will keep carp at bay. And, really, it's designed to be redundant with the setup in Romeoville, which will continue to operate at a cost of about $15 million per year. Illinois also spends more than $2.5 million a year paying fishermen to pull millions of pounds of carp out of the rivers. (In 2022 the state led a campaign to persuade chefs to put carp on restaurant menus, rebranding it "copi," short for copious, but it hasn't caught on.) "There is no single thing that anyone can do to make it a surefire" deterrent, says Reuben Keller, a professor of environmental science at Loyola University Chicago who studies aquatic invasion ecology.

Definitions of success may vary. The goal of the BRIP is to stop carp to the greatest extent possible, but there's no official key performance indicator. Whitney acknowledges that, over time, carp could adapt to the BRIP's deterrents and swim past them. That's why he considers the project an example of "adaptive management," meaning the Corps will continue to develop and add anti-carp defenses as necessary. "It's the best we can do today," Whitney says, "to prevent disastrous consequences if we fail." Ⓑ

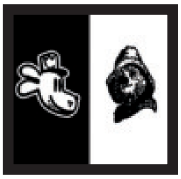
2025 IN FEUDS

■ **THE BEEFS THAT WILL DEFINE THE NEXT 12 MONTHS**

■ **BY MAX CHAFKIN**

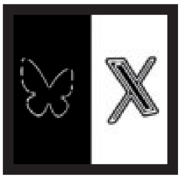
◀ SAM ALTMAN VS. ELON MUSK

In one corner: the world's richest man, electric car and rocket impresario, and self-proclaimed "first buddy" of Donald Trump. In the other: OpenAI's chief executive officer whom Musk has accused, in a lawsuit, of hijacking the venture in pursuit of profit. Altman and OpenAI dispute the allegation, suggesting that Musk is just trying to harm a business rival. Musk countered with a Trumpian coinage, calling Altman "Swindly Sam."



◀ DOG MAN VS. PADDINGTON BEAR

Two very different visions of kid-friendly entertainment are hitting US theaters within a week of each other in late January. The titular star of *Paddington in Peru* (the third film in the critically beloved series) is an impeccably dressed, polite, extremely British bear. *Dog Man*'s hero wears a uniform, drinks out of toilets, is nonverbal and comes from the Captain Underpants cinematic universe.



◀ BLUESKY VS. X

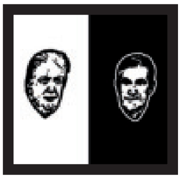
Thanks to Musk's right-wing pivot and Trump's election, X (the social network formerly known as Twitter) is more relevant than it's been in years. But many of the journalists and celebrities who helped popularize the platform are now decamping en masse for Bluesky, where "tweets" are referred to as "skeets," and everything else looks pretty much exactly like Twitter before Musk bought it.

◀ KENDRICK LAMAR VS. DRAKE

Last year's big rap beef—in which the two rappers released dueling diss tracks—threatens to spill into the courtroom after a company owned by Drake said it was preparing to file suit against streaming platform Spotify and Lamar's record label for allegedly promoting Lamar's diss tracks over Drake's own. Spotify has yet to respond publicly; UMG, which represents both artists, called the claim "offensive and untrue."

◀ GOOGLE VS. GAIL SLATER

In November the US Department of Justice asked a federal judge to force Google to sell off its Chrome web browser. Google, which described the proposal as "radical," had hoped things would change after January. But in announcing that he'd picked Slater, an aide to Vice President-elect JD Vance, to run the DOJ's antitrust division, Trump suggested Slater wouldn't be much of a friend to Google. "Big Tech has run wild for years," he said.



◀ DONALD TRUMP VS. JEROME POWELL

The two men appear poised to resume the uneasy dance that defined their relationship during Trump's first presidency. This likely means Trump complaining, loudly, that interest rates aren't low enough, while the Federal Reserve chair, who's said inflation remains higher than the central bank would like, attempts to resist pressure from the president.

■ OTHER FEUDS WE'RE WATCHING:

#Resistance vs. #Resignation; Zyn vs. ALP; Peanut coin vs. Justice coin; ChatGPT vs. *New York Times*; sports betting vs. sports watching; Crocs vs. Birks; Meta's Reality Labs vs. reality; Le Pen vs. l'établissement; *Love Is Blind* cast members vs. *Love Is Blind* producers; drugstores vs. people who want to buy a bottle of shampoo real quick; Instagram face vs. Mar-a-Lago face

■ GO AHEAD AND TREAT YOURSELF

THE RIGHT STUFF TO BUY IN 2025

■ BY THE PURSUITS EDITORS

▲ A TINY GENIUS FOR THE KITCHEN

Anova Culinary's $1,199 Precision Oven 2.0 brings a huge range of cooking capabilities to your countertop. With pro-grade features such as steam injection for juicier roasts and bagless sous vide cooking, it leverages more tech than the average smartphone. An onboard camera allows the oven to recognize what you're cooking, suggest optimal settings and even take time-lapse footage of your brownies baking.

▲ HEADPHONES THAT CONNECT TO YOUR BRAIN TO HELP YOU FOCUS

It's no secret that headphones can help with concentration. Neurable and Master & Dynamic's $699 MW75 Neuro headphones offer more than music and noise cancellation, though. They're a brain-computer interface, gathering 12 channels of electroencephalography (EEG) data via sensors woven into the ear pad cushions. This information, analyzed and presented in Neurable's app, lets you track your optimal focus times and receive alerts suggesting a break when signs of burnout show.

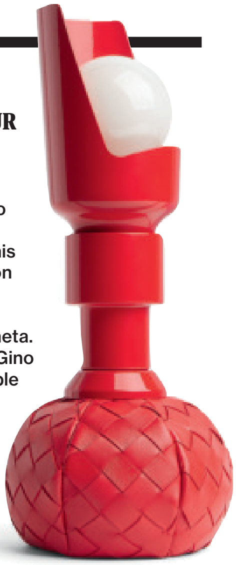
DAGNE DOVER

▶ THE WEEKENDER FOR WORK TRIPS

The $395 Dagne Dover Monaco garment duffel unfurls smartly to reveal a lie-flat compartment for a suit or tux. Zip it up, and you've got generous spaces to hold a few days' casual wear—plus a shoe compartment—all in a sturdy nylon bag you can sling over the handle of a large roll-aboard for a longer trip.

▶ A FUNCTIONAL SCULPTURE FOR YOUR WORKPLACE

Burning the proverbial midnight oil doesn't have to mean depressing lighting. Cheer up your desk with this limited-edition collaboration between lighting design company Flos and Italian fashion house Bottega Veneta. In this update to designer Gino Sarfatti's Model 600 table lamp from 1966, the adjustable metal base is covered in calfskin in the design house's signature Intreccio weave. It comes in a variety of colors, such as bright red, thunder gray and emerald green; the $2,750 large model is nearly 13 inches tall and has a dimmable LED bulb, making it perfect for a variety of workspaces and moods.



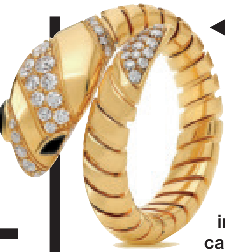
G.
goop
GOOP GLOW
goop beauty

▲ A FRESH FACE FORWARD

The most buzzed-about skin-care product from the fall is the $150 3x retinol regenerative serum in the Goop Beauty line. It combines three forms of dermatologist-beloved vitamin A to encourage cell turnover. What better way to start the new year than by sloughing off the deep wrinkles, rough skin and other signs of aging from the past one?

◀ A SPRING IN YOUR SCENT

For Dolce & Gabbana's Devotion Pour Homme, French master perfumer Olivier Cresp took inspiration from childhood trips to Sicily, where people twist lemon peels into their espresso, creating an invigorating and unforgettable aroma. His woody, spicy $126 fragrance also captures earthy patchouli for a calming groundedness.



◀ WISDOM AND ELEGANCE AT YOUR FINGERTIPS

Late January will see the kickoff of the Year of the Snake in the Chinese lunar calendar. Those born under its eye are known for intelligence, intuition, good fortune and grace. It's also regarded as a year of transformation and a prime time to make strategic plans. Keep that luck and wisdom at hand with this $9,500 18-karat yellow gold ring, which melds diamonds, black onyx and Bulgari's Serpenti motif into a springy Tubogas design.

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CRYPTO WON. NOW WHAT?

■ **THE INDUSTRY GOT EXACTLY WHAT IT WANTED IN NOVEMBER'S ELECTION AND IS IN A POSITION TO WEAKEN FINANCIAL RULES THAT MIGHT PROTECT THE ECONOMY FROM THE NEXT CRYPTO CRASH**

■ **BY MOLLY WHITE**

■ ILLUSTRATION BY CHRIS HARNAN

Crypto is heading into 2025 on a tear. One month after Donald Trump won the US presidential election, Bitcoin crossed the $100,000 mark for the first time, and evangelists began declaring it only the beginning of another cryptocurrency bull run.

This rally feels different from the regular boom-and-bust cycles that defined cryptocurrency's teenage years. For the first time, the US will have a president who's directly endorsed cryptocurrencies—and even introduced his own token. Trump is already lining up crypto believers to take key spots in government. Because his campaign promises at the annual Bitcoin Conference in July included establishing a "strategic national Bitcoin stockpile," analysts are seriously discussing whether the country might do it. Even before the election, BlackRock Inc. and other financial giants started exchange-traded funds to offer cryptocurrencies through traditional brokerage accounts, paving the way for the asset to reach an even broader group of buyers. Crypto, which has always played up its antigovernment, antiestablishment ideology, has become the establishment.

The foundation for this unlikely reemergence has been under construction for years. As attention shifted away from crypto during its downturn, executives and strategists within the industry quietly got to work. That didn't mean building the long-promised killer app that would finally prove the practical utility of blockchains. Instead, they laid the groundwork for an unprecedented political influence campaign. This worked out to more than $130 million in political spending in the 2024 cycle, along with a heavy public-relations campaign to convince candidates that they couldn't afford to alienate single-issue "crypto voters"—a group strategists largely invented from whole cloth.

The crypto campaigners also amplified narratives that federal agencies have engaged in a wholesale war on crypto and have pursued extragovernmental campaigns to punish innovative financial startups that have done nothing wrong. This will sound familiar to anyone who's heard Trump and his surrogates talking about tech regulation, even if it reverses the reality, which is that the crypto industry has consistently ignored existing rules while arguing that the government should pass friendlier ones. "The crypto industry is built on a foundation of regulatory noncompliance," says Hilary Allen, a law professor at American University and the author of *Driverless Finance*.

The lack of regulation has led to some spectacular cases of fraud, but the consequences have been relatively limited. Financial crises turn into full-blown catastrophes once a crash in one sector starts doing real damage elsewhere. (You didn't need to be holding a big mortgage on a suddenly cheap house to feel the pain in the 2008 crash, for instance.) The silver lining to the 2022 crypto bust, which wiped out countless retail investors as well as a number of major crypto firms, was that people who hadn't bought into the hype were insulated from the devastation. But the firewall separating the volatile and fraud-prone crypto markets from traditional finance may not hold through a Trump presidency, or protect us through the next crypto market downturn.

Industry cheerleaders like Paul Atkins, Trump's nominee to run the Securities and Exchange Commission, are slated to take over leadership at key federal agencies, meaning what little enforcement we've seen in the sector is likely to disappear. Instead, the new administration has telegraphed its intention to defang or dismantle the agencies and regulations that protect consumers and maintain faith in businesses and markets. The result could be a crypto industry that's much more entangled with everything else. "The ultimate irony," Allen says, "is that the crypto industry is angling to integrate itself with the rest of the financial system so that it will be supported by the very central banks crypto was originally designed to repudiate."

Despite industry protests, regulations had discouraged major banks from getting too involved in crypto, thus shielding them from its subsequent collapse. The importance of that separation was underscored in March 2023, when two banks that did have significant cryptocurrency exposure failed. At that time most retirement and pension funds had minimal exposure, in part because guidance dissuaded fiduciaries from offering crypto options in 401(k) plans, and in part because of the unavailability of crypto assets via traditional brokerages.

Some of these protections have already eroded as the SEC—despite its reputation as an industry nemesis—approved exchange-traded products linked to Bitcoin and Ether, making them more available to traditional investors and funds. More retirement account administrators, including those managing employer-sponsored 401(k) plans, are offering crypto exposure.

The industry has been working hard to dismantle restrictions on regulated banks getting involved with crypto, lobbying to overturn SEC Staff Accounting Bulletin 121, which instructs banks to disclose the crypto assets they hold on behalf of customers and to maintain sufficient assets to secure those holdings. The industry denounced the bulletin, saying it made it "impossible" for banks to hold cryptocurrencies. It persuaded national lawmakers to introduce a bill in February 2024 that would not only overturn the commission's guidance wholesale but prevent it from putting up similar guardrails going forward. The attempt to revoke the bulletin passed in Congress but was ultimately vetoed by President Joe Biden, who expressed concern that it would "jeopardize the well-being of consumers and investors" and hamstring the SEC.

Under Trump, no such vetoes are likely to prevent Congress, with its increasing ranks of pro-crypto lawmakers, from peeling back the SEC's authority. Congress can also be expected to try again to move regulatory authority to the Commodity Futures Trading Commission, a much smaller and underfunded regulator with limited experience overseeing markets composed primarily of retail investors. This shift, combined with the likely appointment of a crypto-friendly CFTC chair, would end any hope of meaningful oversight of the crypto industry.

The incoming administration is also likely to target the Consumer Financial Protection Bureau, which was created in the wake of the 2008 crisis to combat predatory behavior in the finance industry. Venture capitalist and recent political megadonor Marc Andreessen has railed against the CFPB, erroneously claiming it was responsible for a campaign of "debanking" that unfairly targeted cryptocurrency and fintech firms. (Incidentally, CFPB director Rohit Chopra has condemned "shady practices" at Synapse, a company that Andreessen's firm, Andreessen Horowitz, had invested in. When Synapse filed for bankruptcy in April, tens of thousands of people were left without access to their money.) After the election, Elon Musk said the government should "delete CFPB." Doing so could dramatically limit, if not eliminate, the government's ability to ensure fairness in consumer financial services, including in areas where it's already expressed concern, such as digital payments and crypto gaming.

The industry's lobbying is strikingly similar to that of former FTX Chief Executive Officer and current federal inmate Sam Bankman-Fried. Before his company's collapse and the exposure of the massive fraud lurking just under its surface, Bankman-Fried hobnobbed with congresspeople to pitch his vision for legislation that he claimed would fill regulatory gaps while allowing the crypto industry to flourish. He publicly spent around $40 million on campaign contributions. Later it came out that he had spent closer to $100 million, funneling the difference through "dark money" channels and illegal straw donors.

Although Bankman-Fried and others in crypto said his lobbying would benefit both the industry and consumer protection, critics worried that his efforts were merely self-serving attempts to pay off lawmakers to elevate FTX's business interests. In reality, the proposals would have reduced regulatory oversight of crypto firms, in some cases leaving it up to the industry to "self-regulate" or follow self-imposed "standards." No amount of self-regulation prevented Bankman-Fried from squandering billions of dollars of his customers' money, which has left millions of people without access to their funds for more than two years now.

While the industry has declared itself ready for its mainstream and institutional debut, little has changed to prevent the fraud that's still rampant within it. Lawmakers who promised to prevent anything like FTX from happening again never passed any legislation to do so. Some of them have since cozied up to the industry and agreed to work to undermine any real protections. And although crypto executives condemned the 2022 events and lamented the damage to their reputation, they've opposed new ideas for legislation to increase consumer protections.

As more institutions turn their eyes to cryptocurrencies, and as surging prices tempt a wave of retail investors to buy in as they hope for huge returns, the stakes have never been higher. Prices could continue to go up, powered by the sugar high of having believers in power continues. But the industry's massive influence campaign hasn't changed the fundamental risks or the widespread fraud. Another washout could be more devastating to even more people. It could threaten retirement savings and pension funds, even the broader banking system and economy.

There's a chance that when that happens, crypto will have grown so enmeshed with the rest of the financial world that a collapse in once-fringe speculative digital assets must be prevented at any cost. Will the industry's endemic fraud and risk-taking ultimately be backstopped by government bailouts, funded by taxpayers who may themselves have no exposure to crypto assets? It certainly seems that the believers now descending on Washington are closer than ever to their goal of taking over the financial system. At that point, they may be too big to fail. Ⓑ

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AMERICA NEEDS POWER. CAN THE INDUSTRY DELIVER?

■ THANKS TO AI, DATA CENTERS ARE POPPING UP ACROSS THE COUNTRY. BUT THE CLIMATE PRICE FOR ALL OF THIS ENERGY USE IS STEEP

■ BY WILL WADE AND JOSH SAUL

Delivering power to homes and companies is supposed to be a boring and predictable business. While it's true that the US population has been increasing and electrifying more things as it does, that growth in power use has been offset by energy savings as buildings, factories and appliances become more efficient. Indeed, electricity consumption in the US has changed little since the start of the 21st century. Until now.

Suddenly, America needs more juice—for factories and homes, electric vehicles and heating, and especially data centers and artificial intelligence. The surge in power demand is unlike anything utilities have seen in decades, perhaps not since World War II. That's going to complicate the country's already bumpy shift to clean energy, and Donald Trump's imminent return to the White House promises to shake up the transition even more. By all accounts, the industry isn't ready. "The impact of AI on the power grid came on fast," says Timothy Fox, an analyst at ClearView Energy Partners. "We're seeing load-growth projections that are unprecedented."

US power demand is expected to climb almost 16% over the next five years, more than triple the estimate from a year ago, according to Washington, DC, consulting firm Grid Strategies. That's an enormous shift, since America's demand for electricity has risen less than 1% a year for more than two decades. According to Grid Strategies, load growth will hit 3% in 2024.

Although other industries can handle fast growth, electricity is different. Big infrastructure projects such as power plants and transmission lines can take a decade to build and can run for a half-century or longer.

Consider what's happening in Georgia. The Peach State has a strong manufacturing base and an ever-increasing number of large data centers—more than 50 in total. Over the past year, the state's largest power company has more than doubled its forecast for demand from committed and potential customers building large power-hungry projects. In 2023, Georgia Power said those projects would need 17 gigawatts of electricity by the mid-2030s, but in November it updated that figure ▶

▲ THREE MILE ISLAND IS BEING REVIVED TO HELP SATISFY DATA CENTERS' DEMAND FOR ENERGY

■ HEATHER KHALIFA/BLOOMBERG

◀ to more than 36GW. For context, a single gigawatt can power about 750,000 homes.

The surge is prompting utilities and their big power-using customers to make some unexpected decisions. After years of watching coal plants retire in droves as power producers sought to curb their planet-warming emissions, some utilities are reversing course on climate goals. Customers are clamoring for so much electricity that operators are keeping their dirtiest fossil fuel plants running longer than expected.

FirstEnergy Corp., based in Akron, Ohio, plans to continue operating its Fort Martin and Harrison coal-fired plants in West Virginia, abandoning an earlier pledge to stop using the fuel by 2030. Other coal plants across the US that were scheduled to close in the next several years are getting life extensions as utilities contend with the increased demand.

Expect to see more climate backtracking in 2025 as regulators stress "reliability"—making sure there's enough power on the grid so the lights stay on and the data centers continue to hum. "It's going to be a challenge to keep up with carbon commitments with this new load growth," says Rob Gramlich, Grid Strategies' president. For many companies, carbon goals are "nice to have," he says, but "when push comes to shove, states are going to make sure they have reliable and affordable power."

> **"WHEN PUSH COMES TO SHOVE, STATES ARE GOING TO MAKE SURE THEY HAVE RELIABLE AND AFFORDABLE POWER"**

Trump's administration is likely to push climate goals back further. The incoming president, a fan of fossil fuels, has said climate change is a hoax and vowed to roll back parts of the Democrats' signature climate law, the Inflation Reduction Act, which he calls a "green new scam." He'll have several tools at his disposal that may aid utilities that are rethinking their plans to close coal plants.

Policies for claiming some tax incentives under the Inflation Reduction Act haven't been finalized, and pollution rules from the Environmental Protection Agency could be modified. The new administration is likely to unwind many climate regulations, including those challenged by utilities, coal enthusiasts and red states. Offshore wind, a longtime target of Trump's ire, may be especially vulnerable, because it's regulated primarily by federal agencies.

Individual states have broad authority to regulate power plants, and many have become more aggressive about reining in emissions, but the president will still have significant leverage. "Trump could prevent new restrictions from happening, and he could try to unwind some of the ones that are already on the books," says ClearView's Fox.

One area that may thrive is nuclear, which has had a surge in interest both from tech companies that need clean energy and from climate advocates who are taking a more favorable view of reactors that supply carbon-free power around the clock. The technology has long benefited from bipartisan support, and Trump has also spoken in favor of it.

In the past year, major technology companies, including Alphabet, Amazon and Meta, have all announced plans to tap nuclear plants to sate their data centers' large appetites. Microsoft Corp. has agreed to buy power from a reactor that Baltimore-based Constellation Energy Corp. plans to restart at Three Mile Island, the Pennsylvania facility that was the site of the worst US nuclear accident, in 1979. Having a supporter in the White House may also speed the construction of a new generation of small modular nuclear reactors. Progress on that front has been glacial so far.

For now, it's hard to predict how Trump may disrupt the energy industry. He's urging oil and natural gas producers to increase output, has long positioned himself as a friend to coal miners and is pushing for tariffs and trade barriers that would threaten technology key to producing renewable power. Few expect the transition in Washington to be uneventful. Even utility heads who say Trump won't change their climate plans are gaming out what the new administration means for them. At a recent utility conference in Florida, Bob Frenzel, the chief executive officer of Minneapolis-based Xcel Energy Inc., said he's going to push the new administration to think about the transmission lines the US needs for the next century.

"I'm trying to step into the administration lingo," Frenzel said. "Make the grid great again." Ⓑ

■ HOT SEAT: KELLY ORTBERG
CEO OF BOEING

Boeing Co. has endured extreme turbulence in recent years. The US aviation champion's workhorse 737 suffered fatal accidents in 2018 and 2019, the pandemic cratered sales, and a near catastrophe in January 2024—a door plug blew out of another 737—exposed troubling lapses in quality control. It's Kelly Ortberg's job to get Boeing back on track.

The industry veteran had a rocky start when 33,000 hourly workers walked off the job in September, halting most production for almost two months and costing the company billions of dollars in lost output. It didn't help employee relations when the chief executive officer said he'd eliminate some 17,000 jobs—about 10% of the global workforce—at the height of the dispute.

But Ortberg is starting to turn things around. In October he arranged $23 billion in fresh financing to prop up the company's depleted reserves. A week later he agreed to a deal that ended the strike after 53 days. He says Boeing can return to form as long as employees focus on competition with archrival Airbus SE and "don't sit at the watercooler and bitch," as he put it in his first all-hands meeting in November.

Despite blunt comments like that and the ongoing job cuts, the shop floor is warming to Ortberg. He's trying to be more involved than his hands-off predecessor, Dave Calhoun, making frequent visits to the production lines and buying a house in Seattle, Boeing's primary manufacturing hub, whereas Calhoun mostly worked from his homes in New Hampshire and South Carolina.

Now Ortberg needs to streamline the sprawling operation, get production back up to full speed and plan a successor to the 737 Max, the popular-yet-troubled plane that got Boeing into its current funk—and him into his job. Ⓑ

—Benedikt Kammel

■ ILLUSTRATION BY FROMM STUDIO

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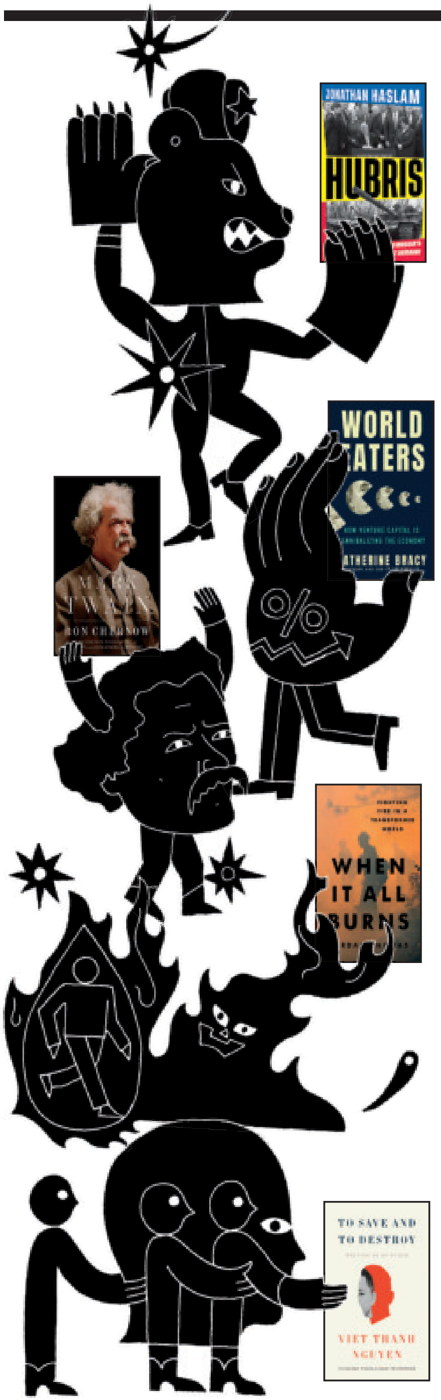
A READING LIST FOR THE NEW YEAR

■ THE BOOKS PEOPLE WILL BE TALKING ABOUT OVER THE NEXT 12 MONTHS

■ BY JAMES TARMY



NONFICTION

HUBRIS: THE AMERICAN ORIGINS OF RUSSIA'S WAR AGAINST UKRAINE

By Jonathan Haslam, Jan. 28, Belknap Press

It may be comforting to see the invasion of Ukraine as arising solely from Vladimir Putin's desire to resurrect the glory days of Russian imperialism. But Haslam, a professor of international relations at the University of Cambridge and a leading expert on the Soviet Union, convincingly traces a line from America's conduct during and after the fall of the USSR to Russia's bellicosity today. Haslam is by no means a Putin apologist, but kicking a country while it was down, he shows, was always bound to have serious consequences.

WORLD EATERS: HOW VENTURE CAPITAL IS CANNIBALIZING THE ECONOMY

By Catherine Bracy, March 4, Dutton

In theory, venture capital is just a way to direct money from institutional investors to fledgling businesses. Every major American tech company to emerge in the past few decades, and countless less famous ones, has been backed by VC. And yet Bracy, the chief executive officer of advocacy group TechEquity, argues this model is pernicious in ways we're only beginning to grasp. She takes issue with what she describes as venture capital's emphasis on "hyper maximalist growth"—saying it focuses too much on short-term success—and persuasively demonstrates how VC's prevalence has created a startup monoculture.

MARK TWAIN

By Ron Chernow, May 13, Penguin Press

If contemporary readers think of Twain (and one suspects they rarely do unless they're in high school English class), they tend to associate him with *The Adventures of Tom Sawyer* and *The Adventures of Huckleberry Finn*. This is a grave injustice to Twain (real name: Samuel Langhorne Clemens) and to themselves. Now, Pulitzer Prize-winning Chernow has written one of his trademark lengthy, gripping and accessible biographies, in this case burnishing the reputation of one of the 19th century's greatest literary voices.

TO SAVE AND DESTROY: WRITING AS AN OTHER

By Viet Thanh Nguyen, April 8, Belknap Press

Nguyen, who wrote the Pulitzer-winning novel *The Sympathizer*, has compiled the essays he delivered in 2023 and 2024 at Harvard's Norton Lectures into this compact volume. Topics range from the value (social, financial) of his cultural "otherness" to the responsibilities of minority creators in the arts. Slight as the book may be, it's packed with what we've come to expect from Nguyen: clean, fluid prose, a combination of political and social critique with allusions to his own biography, as well as arguments so compelling they feel like simple recitations of fact.

WHEN IT ALL BURNS: FIGHTING FIRE IN A TRANSFORMED WORLD

By Jordan Thomas, May 27, Riverhead Books

Forest fires are now a fact of life in the US, as evidenced recently by thousands

■ PHOTO ILLUSTRATIONS BY BORIS PRAMATAROV

THE ENGLISH PROBLEM
BEENA KAMLANI
Mazeltov
a novel
Eli Zuzovsky
THE FACT CHECKER
A NOVEL
AUSTIN KELLEY
REMEMBER THIS
ANTHONY GIARDINA

of acres of New Jersey burning for weeks. East Coast fires, though, are nothing compared with the million-acre infernos experienced in California, which are fueled by both climate change and overdevelopment. The immediacy, danger and horror of the destruction are vividly described in this first-person account of fighting them as part of the elite Los Padres Hotshots crew by Thomas, an anthropologist and scholar. This isn't merely a triumphant story of machismo and heroism; Thomas is just as interested in how we got into this mess as what he did to mitigate it.

FICTION

THE ENGLISH PROBLEM

By Beena Kamlani, Jan. 28, Crown

This novel follows Shiv, the son of a prominent Indian lawyer who's sent to the UK to study law in the 1930s. (The plan was devised by his father's friend, Mahatma Gandhi.) The idea is for Shiv to return to India and use his newfound skills to help it achieve independence. Of course, it isn't that simple, largely because aspects of assimilation prove more seductive than Shiv anticipates. Kamlani, a veteran editor and writer who's somehow only now publishing her first novel, does a superb job of illustrating the barbarity of the British ruling class while underscoring the nobility and contradictions of their subjugated Indian counterparts. The book never feels moralizing or pedantic, even as it introduces a range of figures we're more accustomed to seeing in history books.

MAZELTOV

By Eli Zuzovsky, Feb. 11, Henry Holt & Co.

A bar mitzvah is a coming-of-age ceremony that brings opportunity for limitless forms of misery and stress to the pubescent man-to-be. And when that "man" standing in front of the Torah in an Israeli synagogue is perhaps slightly more neurotic and definitely more gay than his peers, those flash points are compounded. Rather than dwell on the slapstick of adolescence, Zuzovsky, a Rhodes scholar currently getting his Ph.D. at the University of Oxford, positions his protagonist within the complex and often problematic context of his family, country and community.

THE FACT CHECKER

By Austin Kelley, April 15, Grove Atlantic

Kelley, a former fact-checker at the *New Yorker*, has written a debut novel about (you guessed it) a fact-checker at a magazine like the *New Yorker*. And while this line of work is perhaps not as scintillating as he'd have us believe, the plot that springs from such humble beginnings is worth a read. While working on an inconsequential piece about the Union Square Greenmarket, his protagonist trips into a rabbit hole populated with odd, only-in-New-York characters.

CRUSH

By Ada Calhoun, Feb. 25, Viking

Calhoun is best known for *Also a Poet*, a much-heralded 2022 memoir that detailed her complicated relationship with her father, the late art critic Peter Schjeldahl. This novel follows an accomplished freelance writer living in New York who embarks on a sanctioned extramarital affair. It has parallels to Miranda July's *All Fours*, which also revolves around a woman of a certain age experimenting with sex and romance beyond her nuclear family. But Calhoun's book is lighter and a bit grittier, with the consequences of infidelity delivered as a relief.

Crush
A novel by
Ada
Calhoun

REMEMBER THIS

**By Anthony Giardina, March 4,
Farrar, Straus & Giroux**

It's rare to find a book this well written and paced. Giardina takes his time setting up the stakes: Miranda is a would-be biographer of an overlooked painter named Anna Soloff, who's becoming a market sensation after her death. Miranda's father, Henry, has been an overlooked playwright for much of his own life, until a self-help book makes him belatedly famous. Separately the two dance around their responsibilities (to themselves and everyone else) as they gradually find a middle ground among art and compromise. Ⓑ

WARS WITH ENDLESS COSTS

■ BAD PEACE DEALS WOULD COMPOUND THE ALREADY HIGH COST OF DETERRING FUTURE AGGRESSION

■ BY MARK WHITEHOUSE

The election of Donald Trump could make 2025 a pivotal year for the wars in Ukraine and Gaza, given that the president-to-be of the world's leading superpower has pledged to put an end to both. Even if he succeeds, the economic consequences of these conflicts will be long-lasting, and his dealmaking won't necessarily make them better.

The two wars are already among the worst human tragedies of the 21st century. Probably more than 180,000 combatants and 40,000 civilians have perished, including thousands of children. In addition, the so-called indirect deaths of Palestinians–from starvation and disease–likely exceed 60,000. Millions more have been driven from their homes, perhaps never to return. The rubble in Gaza alone could take years to clear away. The geopolitical repercussions are hard to predict–as the sudden collapse of the Bashar Al-Assad regime in Syria eloquently demonstrates.

Yet so far global stock markets don't seem terribly concerned. Through the end of November, a Bloomberg index of global equities had risen about 25% since Russia invaded Ukraine on Feb. 24, 2022, and 32% since Hamas attacked Israel on Oct. 7, 2023.

Why so sanguine? Wars have winners and losers. Ukraine's economy has shrunk significantly; Gaza's has collapsed. The cutoff from cheap Russian gas has slammed European consumers and manufacturers, especially in Germany, where industrial giants such as Volkswagen AG and Thyssenkrupp AG are warning they may be forced to slash production and workers. But US liquefied natural gas companies have ramped up exports to Europe, and defense companies such as Germany's Rheinmetall AG have seen their stock prices soar on expectations of surging orders and earnings.

In the final tally, for countries outside the war zone the net output effect of both wars could be very small. A calculator developed by Germany's Kiel Institute for the World Economy, using historical data on more than 150 conflicts since 1870, estimates a cumulative loss of about $300 billion, or just 0.25% of countries' combined annual gross domestic product. In practice, with its large defense industry and ample energy supplies, the US might even gain.

That said, not all output is created equal. There's a difference between producing steel to make buildings and manufacturing missiles to obliterate them.

■ ILLUSTRATION BY DANIEL ZENDER, HOT SEAT: ILLUSTRATION BY FROMM STUDIO ■ DATA: COMPILED BY BLOOMBERG

"GDP is not a good measure in countries at war," says Sergei Guriev, dean of London Business School and former chief economist at the European Bank for Reconstruction and Development. "Producing tanks to get burned up in Ukraine doesn't improve quality of life."

Also, output doesn't come close to capturing the whole economic picture. The return of war to Europe and the Middle East will have long-term effects on the finances of the governments that buy the materiel and pay the soldiers. So much for the "peace dividend," the idea that the fall of the Soviet Union would usher in a more harmonious era in which governments could spend less on their militaries and more on lowering taxes, expanding social benefits and other nice things.

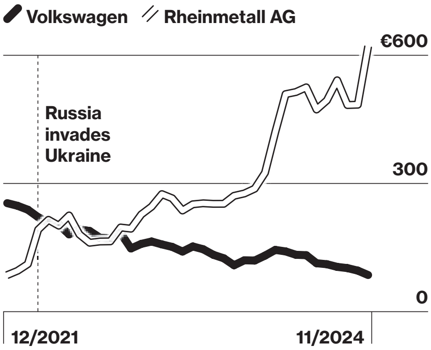
"Russia has built up enormous capacity in making weapons. It would be naive to think they won't keep using those capabilities," says Jonathan Federle, a research fellow at the Kiel Institute. "This presents a persistent security threat."

The European Union in particular will have to ramp up spending to strengthen its militaries and its capacity to produce armaments—something EU leaders have set as a top priority for 2025. Bloomberg Intelligence estimates that by 2034 the necessary spending could add as much as $2.8 trillion to the sovereign debts of European NATO members—further stretching already precarious finances and limiting their ability to respond to other economic shocks. Then there are the potential costs of rebuilding Ukraine, most recently estimated at almost $500 billion by the World Bank.

Granted, such efforts may have an upside. If the EU reaches an agreement on how to provide for its common defense, the enhanced unity and security could make it a more attractive destination for much-needed private investment. "I could even imagine some kind of defense dividend," Federle says.

MORE TANKS, FEWER CARS

Stock price



Much, however, depends on Trump. If he strikes deals that achieve independence for Ukraine and some semblance of peace for Palestinians, he could enhance global security. If his negotiating approach amounts to accommodating Russian President Vladimir Putin's designs on Ukraine or Israel's permanent occupation of Gaza and annexation of the West Bank, then the result could be fragile and costly. "How the conflicts end matters," Guriev says. "If anyone sees the outcome as good for the aggressors, that increases the risk of further aggression."

A Russia-controlled Ukraine would present Europe with the challenge of absorbing more refugees and defending against further aggression, at a cost many times that of defending Ukraine alone. Moscow could also wreak havoc by exporting weaponry—empowering, for example, the Houthi militia in Yemen to shut down access to the Suez Canal, a key maritime trade route.

If China were emboldened to invade Taiwan, the disruption to the global economy would be much greater. The US might be compelled to bolster its military to respond to multiple threats at once—a costly proposition at a time when the government's debts are already growing at an unsustainable pace.

If those are the hazards of a bad peace, a continuation of these conflicts presents its own risks. In addition to the ever-increasing human toll, the wars are dangerous generators of radical uncertainty. The speed with which Islamist rebels have overrun Syria illustrates the potential for the unexpected. The longer the fighting goes on, the greater the chances that some extreme event—say, Russia hitting the wrong part of a Ukrainian nuclear facility, or the Middle East war expanding to threaten global oil supplies—will freak markets out to the point that it affects the real economy. In such a scenario, few countries would escape the repercussions.

"I don't think that in the 21st century you can find a democratic politician or corporate CEO who thinks, 'Oh, these wars are good for me,'" Guriev says. "Everybody wants them to end." Ⓑ

■ HOT SEAT: KRISTI NOEM

NOMINEE, SECRETARY OF HOMELAND SECURITY

KE AMERICA
REAT AGAIN

A few people have been tapped to help President-elect Donald Trump enact his sweeping campaign promise to deport millions of migrants, but Kristi Noem, the proposed head of the Department of Homeland Security, will be at the center of the effort, which will touch multiple agencies. A former member of the House of Representatives and the current governor of South Dakota, Noem has proved her MAGA bona fides. In addition to taking on a variety of culture war issues, she deployed members of her state's National Guard to Texas in 2021 to help secure the southern border. Critics blasted the move as a publicity stunt—some found it doubly inappropriate because it was funded by a private donation.

Noem will have plenty of opportunities to find more controversy if the Senate confirms her. Immigration is arguably Trump's top priority, and she will face pressure to carry out his plans in the most aggressive way possible. During the president-elect's first term, those tasked with implementing his vision didn't have a long shelf life. John Kelly lasted seven months as secretary of homeland security before becoming White House chief of staff, then fell out with Trump. The next in line for the job, Kirstjen Nielsen, also exited prematurely. Whether or not she succeeds, Noem is bound to have a long year. Ⓑ —*Reyhan Harmanci*

ADVERTISEMENT

$44 Trillion Risk Degrading Our Earth

Land Restoration Takes COP16 Spotlight

“We want all of life’s conveniences, but we don’t want to know about the environmental cost of providing them. The facts are overwhelming, but they cannot be overlooked.” These are the words of Dr. Osama Ibrahim Faqeeha, Deputy Minister of Environment of Saudi Arabia, speaking to Bloomberg ahead of the UNCCD COP16, a landmark environmental conference that took place in Riyadh in early December.

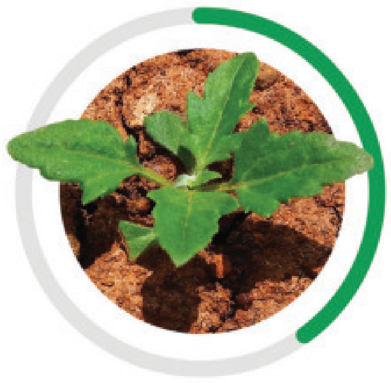
The issue at the heart of the event? Land degradation—a global issue that puts half the world’s GDP—$44 trillion—at risk.

The United Nations Convention to Combat Desertification event brought together thousands of global leaders across the public and private sectors to raise awareness and drive urgent action on land degradation and restoration.

Land degradation: A global alarm

“The challenge with land degradation is that we are not exposed to its impact in our daily lives,” said Faqeeha. But its impact is reaching all corners of the world. It is estimated that 40% of the planet’s soil quality is already in poor condition—and an alarming 100 million acres of land is further degraded every year. The socioeconomic impact of land degradation directly or indirectly affects 3.2 billion people—around 40% of the global population.

Without well-implemented and impactful solutions, the world faces significant risks, including increased migration and food insecurity, and devastating effects on livelihoods and the global economy.



40% of the world’s land has degraded

Source: UN Global Outlook Report

Ecosystem restoration and the Middle Eastern Green Initiative

As part of the United Nations Decade on Ecosystem Restoration (2021–2030), global leaders have committed to restoring 1.5 billion hectares of land by 2030.

The Middle Eastern Green Initiative, led by Saudi Arabia, is one of the world’s leading reforestation efforts. The initiative brings the public and private sectors together with the aim to plant 50 billion trees and rehabilitate 200 million hectares across the region’s dry desert environment. This initiative requires broad participation to succeed. “All the stakeholders need to be engaged and positively react,” said Faqeeha.

Funding, policy and partnerships

According to the UN Environment Programme (UNEP), combined funding from both public and private sources to address climate change totals approximately $200 billion per year. However, only $35 billion is allocated to land restoration projects. UNEP estimates that $200 billion annually is needed to reach land degradation neutrality (LDN) by 2030.

“We need to engage with financial leaders to say: Every dollar invested in land restoration and sustainable management returns between $7 and $30. We need to highlight these examples and inspire long-term thinking,” said Faqeeha.

Land degradation and restoration are on the global agenda at DAVOS 2025, where leaders are expected to build on discussions and plans from COP16.

“We need to mobilize global resources to address these targets, and we need to act now,” said Faqeeha.

Sponsored by UNCCD COP16 Riyadh | 2024

NO EASY FIX FOR CHINA'S HOUSING CRISIS

■ HOME PRICES KEEP FALLING IN ZHENGZHOU, REVEALING THE LIMITS OF STATE INTERVENTION

▲A SUBURBAN HOUSING PROJECT IN ZHENGZHOU

■ PHOTOGRAPH BY YUFAN LU FOR BLOOMBERG BUSINESSWEEK

■ BY BLOOMBERG BUSINESSWEEK

As President Xi Jinping tries to defuse a property slump that represents the greatest threat to China's economy, rescue efforts in a city that presaged the crisis are failing to spur a rebound. Zhengzhou, where Foxconn Technology Group runs the world's biggest iPhone factory, was among the first in the nation to see its housing market crash. Since 2022 the local government has adopted an array of measures to revive the market, including loans to developers to complete unfinished projects, offers to buy their surplus units and turn them into affordable housing, and even payments to residents who replace outdated homes.

Zhengzhou has tried so many ideas that officials from other cities have been flocking there to study its model. And yet home prices in Zhengzhou and the rest of China keep falling. A recent visit by *Bloomberg Businessweek* to the city revealed evidence of the state intervention—cranes whirring again along the skyline thanks to government loans for long-stalled developments and people collecting keys to move into an affordable housing project—but would-be buyers remained on the sidelines, convinced that prices had far from bottomed out. The public housing push, Zhengzhou's boldest effort, isn't making a dent in the oversupply of homes, because it's too difficult for the local government to persuade developers to sell apartment complexes at enough of a discount to make the economics work.

The biggest problem in Zhengzhou and across the nation is that families, which have in recent years relied on real estate for almost 80% of their wealth, are hoarding cash. Without stability in the property market, the country is at risk of a prolonged economic stagnation similar to Japan's "lost decade" in the 1990s. Even with government intervention, there may be several more years of housing pain: China's population is shrinking, consumers are worried about unemployment, and there are just too many homes.

Out in the Zhengzhou suburb of Huiji, Yoki Ye said she long dreamed of purchasing a larger apartment for her and her 7-year-old son but has now shelved that notion. Ye used to own a small rental apartment with her then-husband, which they sold in 2020 after his pay was slashed during an official crackdown on finance industry wages. The sale price on the home was about a fifth less than what they could've gotten at the market peak. Ye, now 37 and divorced, ▶

◀ works part time teaching English and still owns another rental property, which covers her expenses, but she keeps a tighter budget these days. “I used to think home prices would never fall,” she said. “The reality has been a slap in the face.”

Beijing has introduced a slew of measures to support the property market since 2022. It’s made it easier and cheaper for people to buy homes, while providing government lending to developers so they can finish projects, creating what’s known as the white list. None of this has solved the crisis. After a brief recovery in October, residential sales fell again in November. National used-home prices have declined for 39 straight months through October, to a level about 30% below the July 2021 peak; Zhengzhou’s market has followed a similar trend. Fitch Ratings Inc. expects a 5% decline in new-home prices in 2025.

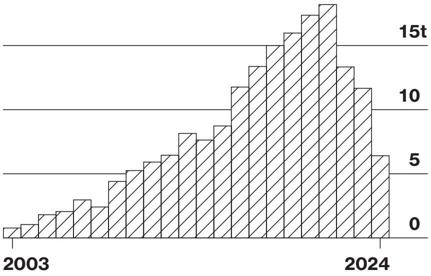
Developers are still strapped for financing—all but a few non-state-owned companies have defaulted since 2021—and the protracted property downturn has spread to the nation’s $60 trillion financial system, hurting state-owned banks as their bad loans creep up and profitability wanes.

China’s housing ministry, the Zhengzhou local government and the city’s public housing operator didn’t respond to *Businessweek*’s questions about state intervention in the property market and its impact.

The country’s glut of unsold new homes runs into the tens of millions, and a vast number of units that were presold but never built exacerbates the problem. Landing on definitive estimates for either is impossible because of the methodology used by the official statistics bureau. Bloomberg Economics estimates that the surplus of unsold homes would take over five years to sell, while Bloomberg Intelligence says it would cost 11 trillion yuan ($1.5 trillion) to complete the presold units.

TUMBLING PROPERTY SALES

Value of property sales in China, in yuan



▼ZHENGZHOU’S FINANCIAL ISLAND

More fiscal stimulus and reform measures to tackle the housing downturn are needed, particularly with the likelihood of increased US tariffs to be imposed by incoming President Donald Trump, says Duncan Wrigley, chief China economist at Pantheon Macroeconomics.

The housing slump is partly Xi’s own doing. His clampdown on the property market, which accounted for almost a quarter of the economy at its height, starved debt-laden developers of financing. Covid-19 lockdowns were another blow to the industry, and a liquidity scare in August 2021 by China Evergrande Group, then the world’s most indebted real estate developer, triggered further regulatory tightening and marked the beginning of the downturn. (By the end of 2021, Evergrande was in default.)

“I USED TO THINK HOME PRICES WOULD NEVER FALL. THE REALITY HAS BEEN A SLAP IN THE FACE”

Zhengzhou, located in the central Yellow River Valley, is the capital of Henan, which was once among the nation’s poorest provinces. After the arrival of the electronics factories, manufacturing overtook farming as the local career of choice. Henan achieved incredible growth as a result. It now has an economy worth $800 billion, nearly the size of Switzerland’s. But expectations outran reality. From 2010 to 2020, Zhengzhou’s population grew 46%, to 12.6 million, while the total urban area more than doubled. The city was never able to attract as many new residents as officials had hoped.

Much of the construction was tied to a vast factory complex developed around Foxconn and a manufacturing facility built by the electric-car maker BYD Co. City officials piggybacked on the investments with countless new residential communities and a $5 billion business district, known as Financial Island. Zhengzhou officials hold out hope that improved roads, revamped airports and photogenic architectural showpieces will bring in more opportunity seekers and tourism. Yet, outside the bustling city center, towers stand silently above broad boulevards devoid of cars and people. Of the seven housing development sales offices *Businessweek* visited, most were empty. In one, run by the distressed developer Country Garden Holdings Co., a handful of customers were milling about beneath giant signs assuring them that the projects were on the government white list. State-owned builders were offering discounts for October purchases of as much as $20,000 on the total price of a home. China Overseas Land & Investment Ltd., once the nation’s most valuable

■ PHOTOGRAPHS BY YUFAN LU FOR BLOOMBERG BUSINESSWEEK (2) ■ ILLUSTRATION BY FROMM STUDIO ■ DATA: NATIONAL BUREAU OF STATISTICS OF CHINA, BLOOMBERG CALCULATIONS

▼APARTMENT BLOCKS UNDER CONSTRUCTION

publicly listed builder, was offering newly constructed apartments for less than older units nearby.

Wang Wu, a 41-year-old cab driver, got in on the activity in 2018, buying a three-bedroom apartment in Zhengzhou with a down payment of just 5,000 yuan. “I missed the first property boom, because I was a kid back then. I missed the second, because I had no money,” he said from behind the wheel of an electric taxi made in China. “When the third one came, I acted without thinking.” He paid off the down payment over two years, he said, but the market had already started to crumble by then. The weak economy means fewer people are taking taxis, and he’s struggling to cover the mortgage.

Zhengzhou has purchased some 111,000 unsold units from developers and converted them into affordable housing over the last two years or so. The government hasn’t said how much money it put into the effort, but the financial news outlet Caixin Media reported the figure to be 30 billion yuan. About three-quarters of the funding for the Zhengzhou program comes from commercial bank loans, according to a state-backed magazine, and the interest rate was only 3%. Still, there’s a consensus emerging among analysts that the affordable-housing model won’t have much of an impact on the oversupply of unsold homes, primarily because it’s hard to make projects financially attractive for local governments. It’s difficult for officials to find entire apartment blocks of small units suitable for affordable housing and then persuade developers to sell them at steep discounts. On top of that, governments need access to cheap financing to make money off projects that offer low rental yields. For local state-owned companies to be incentivized to scale up their purchases of inventory, analysts at Goldman Sachs Group Inc. have estimated that a discount of 30% may be needed, while Huatai Securities Co. analysts have suggested that markdowns of more than 50% may be required.

At a suburban development called Creekside Cilla, about 20 miles southeast of the city center, construction recently restarted after a two-year lull. The local government facilitated a loan to help the state-owned developers complete these homes, says a person familiar with the matter who asked not to be identified discussing private terms. It also agreed to purchase most of the project’s unsold units and turn them into affordable housing. On a recent visit, billboards outside Creekside Cilla advertised plans for a convenience store, a fruit shop, an internet cafe and two subway stations. There was no sign of any of that, and the showroom no longer existed. The surrounding neighborhood was largely deserted. A plot of land across the street, cleared for high-rises, had sat dormant for the last two years, so locals planted a vegetable garden in the dirt. A homeowner who asked not to be identified to protect his safety lamented that the value of his property was now half of what it had been when he bought it. And the unit hasn’t even been built. Ⓑ

■ HOT SEAT: GAUTAM ADANI

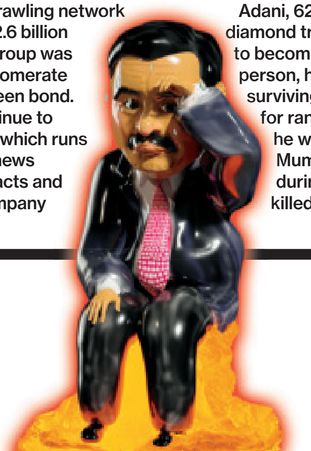
CHAIRMAN AND FOUNDER, ADANI ENTERPRISES LTD.

On Nov. 21, US prosecutors accused Gautam Adani, one of his nephews and a few aides of promising more than $250 million in bribes to win solar energy contracts in India while lying to US investors about their anti-bribery policies to cover it up. Within a week, $34 billion of market value was erased from Adani’s sprawling network of businesses, Kenya canceled $2.6 billion of infrastructure projects Adani Group was seeking to oversee, and the conglomerate halted plans for a $600 million green bond.

The charges are likely to continue to make it difficult for Adani Group—which runs solar farms, ports, power plants, news channels and more—to win contracts and secure financing in 2025. The company has called the allegations “baseless” and, within weeks of the charges, said it may resurrect the scrapped green bond. The renewables unit plans to raise as much as $500 million by February via banks or a private placement in the offshore market. Other units may tap India’s bond market.

Adani, 62, who rose from being a diamond trader in Mumbai in the 1980s to becoming Asia’s second-richest person, has already shown a knack for surviving crises. He was kidnapped for ransom in 1998, and then in 2008 he was among the hostages at Mumbai’s Taj Mahal Palace hotel during the terrorist attacks that killed more than 160 people. In 2023 he bounced back from an attack by short seller Hindenburg Research, whose allegations of wide-ranging corporate fraud—which Adani Group denied—knocked more than $150 billion of market value off his companies at one point.

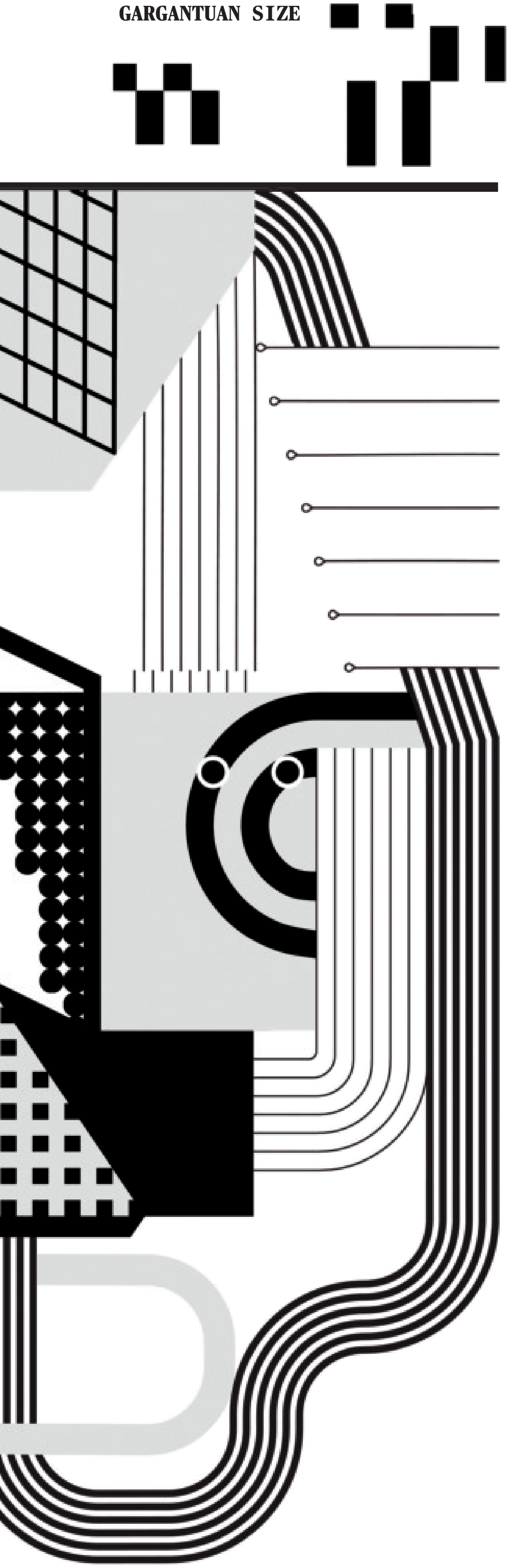
To continue their case, US prosecutors would have to navigate extradition from India, a complicated geopolitical process, and the incoming Trump administration would have to decide how vigorously to pursue the matter. Adani is popular at home, where he’s seen as a national champion and a close ally of Indian Prime Minister Narendra Modi. If Donald Trump wants India in his corner as he seeks to curb China’s influence, he’ll have to carefully thread this needle. Ⓑ *—P R Sanjai*



BIGGER AI MODELS, BIGGER AI PROBLEMS

BY RACHEL METZ

■ OPENAI AND ITS RIVALS ARE RACING TO OVERCOME NEW HURDLES THAT ARE EMERGING AS THE MOST ADVANCED AI MODELS GROW TO GARGANTUAN SIZE



The two years since OpenAI supercharged the generative AI era with the introduction of ChatGPT have passed in a blur of technological one-upmanship. OpenAI and its primary competitors, Anthropic, Google and Meta, have released a flurry of cutting-edge artificial intelligence models, each more skillful than the last. It's now Silicon Valley gospel that more computing power, more data and larger models will lead to such fundamental improvements in AI that the technology will transform entire industries within the next few years.

And yet, threats to the pace of development began emerging even before ChatGPT's second birthday. In 2024, OpenAI and two other leading AI companies hit stumbling blocks. At OpenAI and Google, some software failed to live up to internal expectations, while the timetable of a long-awaited model from Anthropic, a competitor built by former OpenAI employees, slipped after it had already been announced. If progress in generative AI slows in some durable way, it will bring into question whether the technology can ever achieve the more expansive promises the industry's top innovators have made for it. Identifying ways to propel the AI boom into its next stage will be the field's primary challenge in 2025.

The companies are facing several hurdles. It's become harder to find new sources of high-quality, human-made training data to build more advanced AI systems. In addition, even modest improvements in AI performance may not be enough to justify the tremendous costs associated with creating and operating new models. Dario Amodei, Anthropic's chief executive officer, has said it costs about $100 million to train a bleeding-edge model, and he expects that amount to hit $100 billion in the coming years. OpenAI Chief Financial Officer Sarah Friar says that it would be fair to say the company's next cutting-edge model will cost billions to develop, and that there's still a need for "bigger and bigger models that are more and more expensive."

These issues raise doubts about the billions of dollars already invested in AI and about the goal these companies are aggressively pursuing–so-called artificial general intelligence, or AGI, which could match or best humans on a wide range of tasks. The chief executives of OpenAI and Anthropic have previously said that AGI may be only several years away, and both have dismissed any suggestion that they're hitting a wall. Other industry leaders, though, strike a more humble tone. "I think the progress is going to get harder," Google CEO Sundar Pichai said during an interview at the *New York Times*' DealBook Summit in early December. Looking to 2025, he said, "the low-hanging fruit is gone, the hill is steeper."

In an industry that prides itself on innovation, companies are looking for different ways to push AI models forward. Efforts underway include getting computers to mimic how humans mull over a problem to better solve it, building models that are really good at certain kinds of tasks and training artificial intelligence with data generated by AI itself.

OpenAI, in particular, has been an early proponent of AI that can perform humanlike reasoning to take on more complex queries and improve over time, particularly when it comes to questions related to math, science and coding. In September the company unveiled an early version of a model called o1 that does this by spending more time computing an answer before responding to a user's question. OpenAI announced an improved version of that model in December, which CEO Sam Altman referred to on social media as "the smartest model in the world."

The company is so confident about o1 that it's begun offering a $200 monthly subscription that includes, among other features, access to a version of the model that can use even more computing power to answer questions.

Several other companies, including Google and software maker Databricks, are working on their own versions of this approach, which is often referred to as test-time or inference-time compute. Jonathan Frankle, Databricks' chief AI scientist, says he expects to see the technique become much more ▶

◀ widespread in the industry. In addition to providing better answers, he says, it could improve the economics of building AI models by repositioning some costs from prerelease development to times when the models are already in use and thus generating revenue.

Technological rumination doesn't solve the issue of AI's ever-growing hunger for data. Companies are increasingly turning to synthetic data, which can take many forms, including that of computer-generated text meant to mimic content created by real people. Nathan Lambert, a research scientist at the Allen Institute for AI, says that when developing a model called Tulu 3, he and his colleagues prompted an AI model to produce questions based on certain personas. They'd ask it, for instance, to pretend to be an astronaut and devise a math problem specific to that occupation, to which it would produce a question about how far the moon will be from the sun at a certain time of day. They'd feed the questions back into the model, then use both the questions and the answers to fine-tune their own system. For some reason, this technique improved Tulu 3's math capabilities. "We don't know why it works fully," Lambert says, "and that's the exciting side of synthetic data."

Large language models—the kind of AI software that powers ChatGPT—are meant to replicate the words humans use to communicate, so simply training an AI system on the content it produces won't lead to improvements, according to Frankle. Lambert says it's important to filter AI-generated data to avoid repetition and verify that it's accurate. Some researchers have also raised concerns that indiscriminately using such data for training could hamper a model's performance (a consequence they referred to as "model collapse").

Fei-Fei Li, co-director of Stanford University's Institute for Human-Centered AI and a co-founder of the AI startup World Labs, expects AI companies to rely increasingly on synthetic data. She pointed out that those working on self-driving car technology, for instance, have long relied upon simulated driving data. "In the tech stack of AI, data is as important as algorithms," Li says. "Synthetic data has a huge role to play."

The problems of scaling up enormous general-purpose models are particularly relevant if the goal is to work toward AGI. But historically, AI has instead been designed to focus on a single task, and Databricks' Frankle says there's plenty of room to innovate there. Overall, he's optimistic. He likens what's happening in the AI industry now to what's happened in the evolution of the chip industry, where chip developers would reach what looked like a hard limit, then come up with different innovations—multicore processors, co-processors, parallel processing—to keep improving the technology.

"Looking back at our semiconductor days," he says, "you go from one innovation to the next and just keep trying to push forward." Ⓑ —*With Shirin Ghaffary*

THE CHATBOTS COME FOR SEARCH

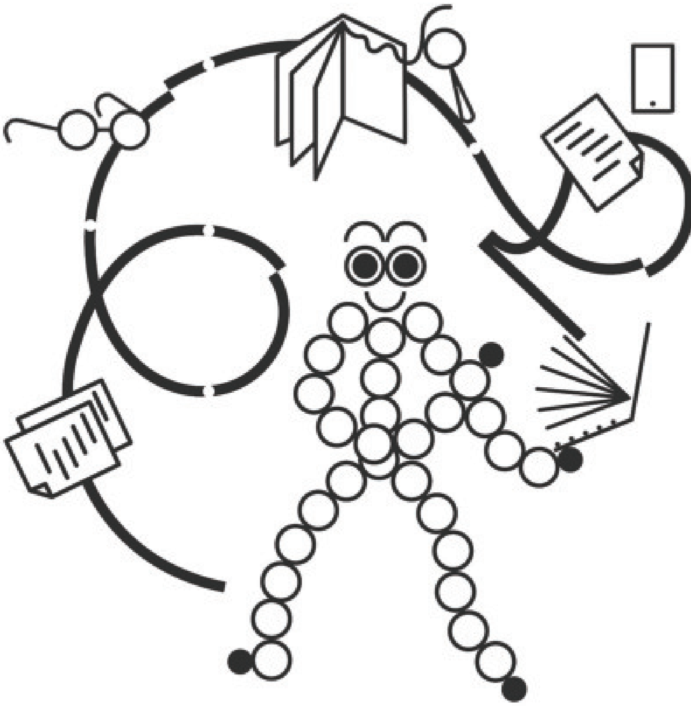
■ **EARLY ADOPTERS ARE FOND OF AI THAT RESPONDS TO QUERIES WITH BRIEF ANSWERS RATHER THAN A LIST OF LINKS. THE INTERNET MAY NEVER BE THE SAME**

■ **BY SHIRIN GHAFFARY**

Planning a camping trip, Matthew Berman remembered hearing that pitching your tent on top of your car instead of on the ground was a good way to avoid animal encounters. It was the kind of claim Berman formerly assessed by typing into Google's search engine. Now he turns to a chatbot called Perplexity.

Berman likes that Perplexity, which markets itself as an "AI-powered answer engine," gives him concise responses to his questions instead of a list of links (though the answers do come with citations linking to relevant sources).

"It's really just about the time investment," says Berman, who founded ▶



■ PREVIOUS AND THIS SPREAD: ILLUSTRATION BY MASHA TITOVA

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"We're invested in those areas of disruption for the next generation," says Franklin Templeton President and Chief Executive Officer, Jenny Johnson. "We've needed some unique types of financing structures to be able to customize our solutions, and Wells Fargo has been really unique in being able to build those for us."

Jon Weiss, Co-CEO of Wells Fargo Corporate & Investment Banking, feels that the best innovation is done arm in arm with clients like Franklin Templeton. "When a key solution is required, we have enough knowledge and trust in each other that we can develop that solution together."

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Corporate & Investment Banking

◀ a tech startup called Sonar to help businesses manage their text messages, and now makes videos and writes a newsletter about artificial intelligence.

He estimates that AI search tools have led him to reduce his searching on Google by more than 90%. “You can put a bunch of time into a search on Google, clicking through links, and it’s frustrating when you don’t get what you want right away,” he says. “Whereas the percentage of time where you get exactly what you want the first time with a Perplexity or ChatGPT is very, very high.”

When it came to his camping trip, Berman decided the tent-on-top-of-car idea wasn’t worth the hassle, even if it did provide some added security from predators.

The number of people turning to AI chatbots instead of traditional search engines when seeking bear-avoidance tips or other information is still fairly small. Perplexity said in March that it had 15 million users, while Google counts them in the billions. But early adopters often anticipate which tech habits will become mainstream, and they can shape that behavior by setting an example for other consumers and helping determine how companies design their products. That helps explain why the two largest search engine operators, Alphabet Inc.’s Google and Microsoft Corp., are making AI a more prominent part of their products.

The stakes for the internet are high. Searching for information on Google is one of the most common things people do online, and many websites and businesses are built around catering to that behavior. Some chatbots have ads, and OpenAI Inc. is considering adding them to ChatGPT in the future. But it’s unclear what role advertising would play in an AI-era internet. One possibility is that a large proportion of people begin paying to search the web. Hundreds of thousands of people subscribe to use the Perplexity Pro chatbot. And OpenAI offers a ChatGPT Plus subscription, which also includes search features. Both companies charge $20 a month for their service.

■ HOT SEAT: SUNDAR PICHAI

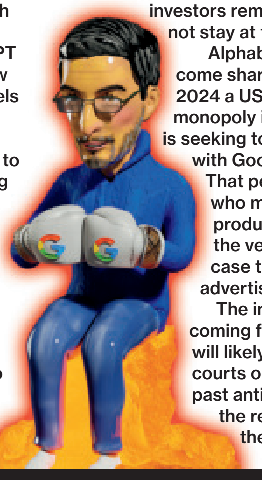
CEO OF ALPHABET

For the people running Google Search, a major task of the new year will be trying to keep ahead of a growing pack of startups. If that wasn’t a tall enough order for Sundar Pichai, there’s also the worry of regulators who would like to lop off a big piece of his tech giant’s empire.

The debut of OpenAI’s ChatGPT in late 2022 led to the rise of a new class of artificial intelligence models that can answer users’ questions in a conversational fashion—and kicked off a sprint in Silicon Valley to redefine search. Startups including Perplexity, Kagi and You.com are trying to beat Google with small teams focused on reinventing internet search.

OpenAI, meanwhile, is adding more search features to ChatGPT. Google’s hold on the market remains tight, but, for the first time in recent memory, it seems to be loosening.

Pichai and his team have woven AI into their own search engine and brought down the cost of delivering AI-generated responses to users. The success of Google Cloud, which is finally turning a profit after years of investment, has appeased Wall Street in recent quarters. But investors remain concerned that Google may not stay at the center of digital life.



Alphabet’s antitrust worries will come sharply into focus in 2025. In 2024 a US judge found it holds an illegal monopoly in search, and the government is seeking to force the company to part with Google Chrome, its web browser. That penalty would surely sting Pichai, who made his name by building the product. The company also awaits the verdict of another antitrust case that takes aim at its online advertising business.

The inevitable wave of appeals coming from Alphabet’s army of lawyers will likely forestall any remedies the courts order up. But if the industry’s past antitrust battles are any indication, the real price may be the distraction they cause. —*Julia Love*

A major question is how Google adjusts. The company is integrating its own AI answers into search with a feature called AI Overviews; it says users have been more satisfied with the results that include the Overviews than those that don’t. Google Chief Executive Officer Sundar Pichai said in October that Overviews is reaching 1 billion users per month and is in the process of expanding to more than a hundred countries.

Still, Google finds itself in a tricky spot. While startups are starting from scratch, the company has to consider how adding AI features could affect its enormously lucrative search operations. It’s also facing this novel threat to its core business just as US prosecutors are asking for new restrictions on how Google approaches AI, a threat the company says could chill its investment in the technology.

For people dropping search for chatbots, the appeal can sometimes be more about the experience than the actual answers. Rebecca Shomair, head of communications for Cisco Systems Inc.’s AI incubator, Outshift, likes using OpenAI’s voice mode, which lets users engage in a conversation with its AI assistant. When she used the tool to ask about her sister’s back pain, a reassuring voice with a British accent gave a few potential causes before suggesting she get her medical advice from a human professional.

“It was very empathetic, speaking back and asking questions to go to the next level that a traditional search engine would not,” she says.

When Shomair tried asking ChatGPT for hiking recommendations in Palo Alto, California, however, the app generated a map that was obviously incorrect, the kind of thing that could have been a serious problem had she not spotted the issue before embarking. Avid AI searchers are aware that chatbots tend to produce incorrect answers, a phenomenon known as hallucinating, and say they cross-reference important results with Google or other sources.

“I treat it kind of like what an intern would produce and then scrutinize a bit,” says John Bailey, a nonresident senior fellow at the American Enterprise Institute, a think tank in Washington.

People can find bad information on Google, too. But many internet users are more accustomed to assessing the credibility of a website than of a

■ ILLUSTRATION FROM TOP: FROMM STUDIO, MOJO WANG

confident-sounding chatbot. Although Perplexity and OpenAI address this by presenting links to their sources, it's not a consistent practice among AI apps. And it's not clear there's a solution to the broader issue of chatbot hallucinations. Early adopters may be patient enough to use a service that occasionally spits out a bad answer, even if they're paying for it. But that may not be true for less adventurous internet users, and Google's price is hard to beat. Ⓑ

THE BIGGEST VIDEO GAME OF THE DECADE

■ ***GTA6* IS ALMOST HERE—AND THAT POSSIBILITY IS ROCKING THE INDUSTRY**

■ **BY JASON SCHREIER**

Grand Theft Auto VI isn't just going to be the biggest video game of 2025. It will almost certainly be the biggest game of the decade—and possibly the most lucrative entertainment product of all time.

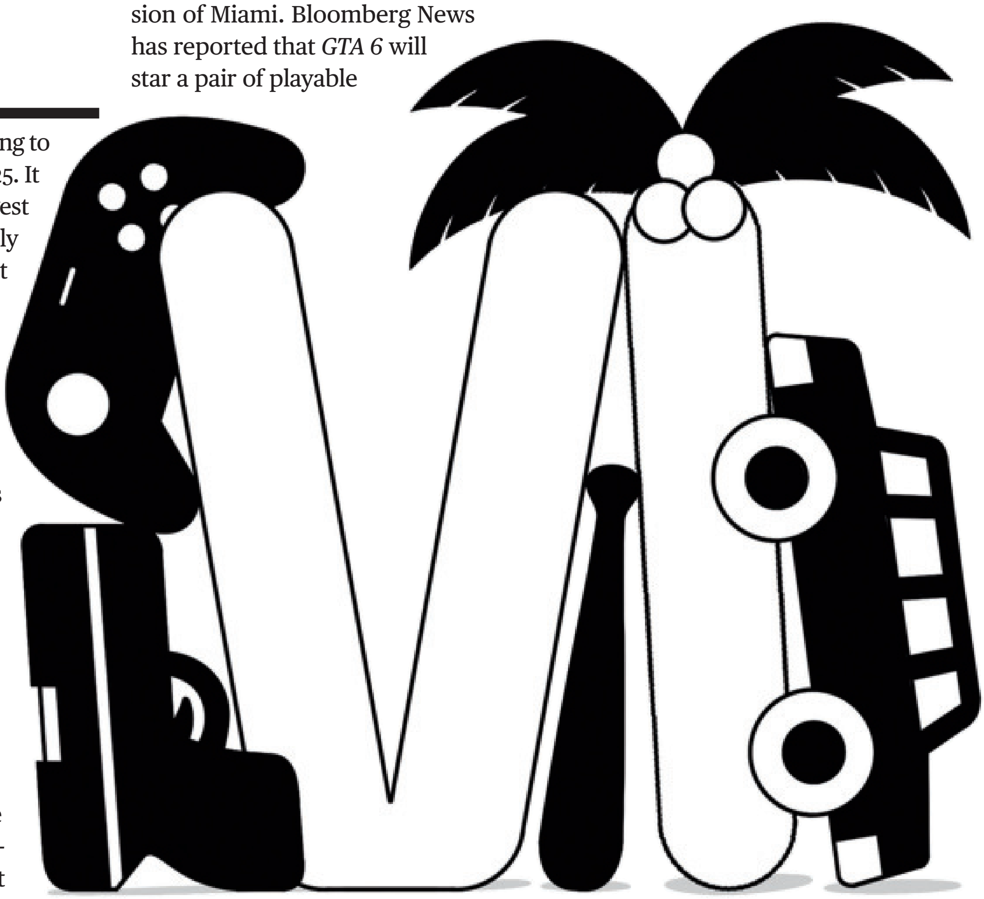
Just look at its predecessor: *Grand Theft Auto V* has sold a staggering 205 million units. Since its release, the franchise has generated about $9 billion in revenue for its developer, Rockstar Games, according to an estimate by *TweakTown*, a trade publication. That's more than the box-office receipts for the three highest-grossing movies combined and makes it the No. 2 bestselling game ever, after Microsoft Corp.'s *Minecraft*. For further perspective, the entire *Final Fantasy* series, with dozens of games spanning almost four decades, has sold 10 million fewer units than *GTA 5*. So expectations for the next one are, of course, high.

Development of *GTA 6* began a decade ago but started in earnest only after Rockstar's last major release, 2018's *Red Dead Redemption II*. That project pushed the development team to the brink, requiring late hours and creating a culture of tension and aggression. Seeking to improve its workplace culture, the company ousted several executives and promised a more reasonable schedule. But a massive hack in 2022 complicated matters, leading Rockstar to clamp down on remote work and direct employees to return to the office five days a week, rankling staff.

Rockstar, a subsidiary of Take-Two Interactive Software Inc., has revealed little about *GTA 6*, other than a fall 2025 release date. Since the announcement of a teaser trailer for the game in late 2023, shares of the parent company have risen more than 30%. The trailer, which has topped 200 million views on YouTube, shows the game is set in a fictional version of Miami. Bloomberg News has reported that *GTA 6* will star a pair of playable characters, a man and woman inspired by the criminal duo Bonnie and Clyde, and that Rockstar is asking its writers to be less crude toward transgender people and other minorities, the frequent targets of throwaway gags in previous versions.

GTA 6 has already missed multiple deadlines, a common practice at Rockstar, but Take-Two says it's now on track. Sales of the game, though likely to be astronomical, won't tell the whole story. The title will feature a significant online mode, selling in-game content designed to generate revenue for years into the future. That's how Take-Two kept *GTA 5* going for more than a decade.

Anticipation is so high that some competing game publishers are waiting as long as possible to commit to their release dates for the fall, according to people familiar with their deliberations who asked not to be identified because they weren't authorized to speak publicly. The publishers want to see whether *GTA 6* will make its deadline or slip into 2026, these people say, and they're determined to keep their own games far, far away. Ⓑ



● By Anna Peele

■ THE HGTV HOSTS HELPED BRING ABOUT A NEW GENRE OF REALITY TV AND BUILT A BUSINESS EMPIRE ALONG THE WAY. HERE’S HOW THEY SEE THE ECONOMY AFFECTING HOME RENOVATION IN 2025

THE PROPERTY

BROTHERS

▲ JONATHAN AND DREW SCOTT

■ PHOTOGRAPH BY MAGGIE SHANNON FOR BLOOMBERG BUSINESSWEEK

"I'm not trash-talking designers, but there are some people out there that all they want is a certain look. They'll force it on everybody," says Drew Scott, half of the duo that essentially initiated the booming era of home-renovation entertainment. Drew, who's energetically affable, Canadian and clearly OK with a little trash-talking, won't name names, but the oblique snub could certainly apply to those other home-reno-tainment moguls (ahem, Magnolia Network's Chip and Joanna Gaines) who've practically overhauled entire towns in farmhouse chic.

Drew and his twin brother, Jonathan, tend to be less dogmatic. They're in their sprawling Los Angeles warehouse where they store the furniture and decor they've used to stage almost 600 home reveals on their dozens of HGTV shows—most notably, the network's crown jewel, *Property Brothers*, on which real estate agent Drew finds homes to rehab and contractor Jonathan oversees the renovations. Millions of people have binged all 14 seasons (the show ended in 2019) and its three spinoffs, with fans including Michelle Obama, Serena Williams and Cher—the latter two even DM'd the Scotts to express their admiration.

Most of the mirrors, throw pillows, lamps and other Pinterest-primed accent pieces are products from Scott Living and Drew & Jonathan Home, two arms of the home goods brand that has made $2.8 billion since it spun out of their reality-TV empire. They represent just a couple of the businesses in their umbrella company, Scott Brothers Global, which spans TV production, book publishing, a real estate portfolio and a new venture capital arm. "They're the best 40 jobs in the world," says Jonathan in a faux-perky salesman's voice, only slightly exaggerating the number of projects he and his brother juggle. "We naturally divide and conquer everything. It's almost like having this perpetual motion machine."

> **"WE'VE MADE MONEY IN EVERY KIND OF MARKET POSSIBLE: UP MARKETS, DOWN MARKETS, BUYER'S, SELLER'S MARKETS—IT DOESN'T MATTER"**

The Scotts, who grew up in British Columbia, first dabbled in real estate when they were 18, rehabbing a building and then leasing it to other university students. In 2008, when *Property Brothers*' eventual production company Cineflix discussed doing a real estate show hosted by Drew, an aspiring actor at the time, Jonathan says his brother initially told him, "I don't want to be a host. I want to be an action superstar."

But after only two years on the air, the show rocketed to HGTV's No. 1 series, and the 6-foot-4 brothers realized there might be a bigger commercial opportunity. They wanted to get into the product business and in 2018 pushed for complete control. "It got a little contentious for a little while," says Jonathan, especially when he and Drew realized their contracts stipulated that they could walk away with everything but the *Property Brothers* name. The two parties eventually came to terms that gave the Scotts all of the show's intellectual property, while Cineflix distributes the program and retains part of the royalties.

We leave the warehouse and stroll through the industrial Huntington Park neighborhood. The brothers credit Jonathan's fiancée, actress Zooey Deschanel, with finding the warehouse in the perfect area, even if some less-than-lovely smells occasionally waft by. "Zooey is the greatest unlicensed Realtor I've ever met," he says. "Oh, my God, it should be her other career," says Drew, an actual real estate agent and the head of TV production for Scott Brothers Entertainment. The studio has produced 33 shows, including *The Nate & Jeremiah Home Project* with Nate Berkus and *Trixie Motel*, which follows drag queen Trixie Mattel's hotel reno in Palm Springs, California. Then there are the shows they host, including *Celebrity IOU* (celebs give back in the form of a reno) and *Brother vs. Brother* (you guessed it: a twin house-flipping competition).

These days the Scotts are interested in going beyond conventional spinoffs, intrigued by innovations like "dimensional lumber," a process by which, they explain, wood is made as strong as steel and light as balsa. They're raising money for their Healthy Home Innovation Fund, in which they plan to invest in tech startups that make homes safer and more affordable, such as a panelized housing company that allows homes to be assembled in pieces like Legos rather than built from scratch. Jonathan sits on the board of the nonprofit Rewiring America, and the brothers have worked closely with the Department of Energy on the electrification of homes—an important step in the transition away from fossil fuels—which they believe is inevitable. "When they first said that we're putting seat belts in cars people complained—'How dare people try and control us?' Now we're like, 'Well, of course you have seat belts in cars. It's safer,' " Jonathan says. "It's just a matter of people don't like change."

The brothers had been enthused about Kamala Harris' plan to build 3 million homes if she'd been elected president. Now they're nervous about the potential knock-on effects of the Trump tariffs. "Jonathan and I love the idea of domestic-made products," Drew says. But, says Jonathan—who heads product for Scott Brothers Global—because tariffs would affect the cost of foreign-produced building materials from steel to lumber, as well as many of the items in Scott Living, "there is a balance we need to strike. Blanket tariffs are not good for any economy."

No matter what happens in 2025, the brothers are ready to flex. "We've made money in every kind of market possible," Drew says. "Up markets, down markets, buyer's, seller's markets—it doesn't matter." But for non-Property Brothers, Drew cautions that this isn't the time to start flipping houses. High interest rates and material costs mean many homeowners are staying put and holding off on renovations that would require them to take out a home equity line of credit. Which may be why the Scotts' yet-to-be-announced show in the works will focus less on aspirational house-porn and more on modest cosmetic changes. "Full-scale renovations," Drew says, "are not realistic for everyone."

A SMORGASBORD OF OBESITY DRUGS

■ RESULTS FROM DOZENS OF TRIALS ARE DUE IN 2025 AS DRUGMAKERS SEEK TO CREATE MEDICINES THAT SPUR GREATER WEIGHT LOSS, CAN BE TAKEN LESS OFTEN OR CAUSE FEWER SIDE EFFECTS

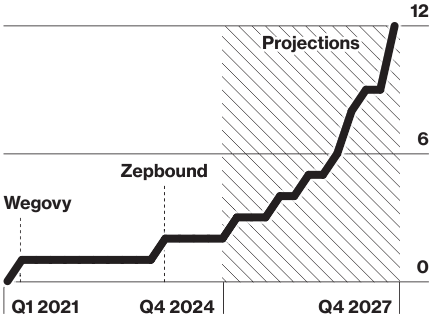
■ BY NAOMI KRESGE

Until now, just two companies have dominated the obesity-treatment market: Denmark's Novo Nordisk A/S and its US rival Eli Lilly & Co. Ozempic and Wegovy, made by Novo, are on track to become the world's bestselling drug franchise in 2025, and Zepbound and Mounjaro, made by Lilly, are growing fast. But the year will also start to show how soon the weight-loss duopoly will face serious challengers.

Results from dozens of midstage patient trials of medications for obesity and related diseases are due in 2025, according to researcher Airfinity Ltd. The slew of data, from both upstarts and industry heavyweights, will help determine the options available in coming years. Drugmakers are aiming to offer medicines that can be taken less frequently, spur greater weight loss or cause fewer side effects.

THICKENING COMPETITION

Obesity drugs approved in the US



Despite opposition to such medications by Donald Trump's nominee for secretary of health and human services, Robert F. Kennedy Jr., Airfinity says as many as a dozen new obesity drugs might appear by 2027. The market by then could approach $50 billion annually, according to Bloomberg Intelligence.

Given the 1 billion-plus people with obesity worldwide, Novo says there's ample room for the competition. "This is not one big homogeneous market," says Chief Financial Officer Karsten Munk Knudsen. Patients need "different products for different motivations and different complications." Dan Skovronsky, chief scientific officer at Lilly, says teams at various companies working to "out-innovate each other" will push everyone to improve their offerings.

The bar is high for the new medicines, as became clear when Amgen Inc. in November released trial results for its MariTide. The drug can be administered with a single monthly injection, versus weekly for current shots, and people who took it lost a fifth of their body weight in a year. But investors found the results too similar to what's available now, and Amgen's shares plunged. "It seems like folks are demanding something greater than Eli Lilly or Novo," says Kazi Helal, an analyst with research company PitchBook.

The leaders are doing their best to stay ahead. Retatrutide, Lilly's next-generation shot, showed an average 24% weight reduction after 48 weeks of treatment in a midstage study released in 2023. And Novo says its CagriSema might help patients shed a quarter of their weight.

While many coming compounds work similarly to what's already on the market, technologies on the horizon are far more exciting, says Novo scientific adviser Lotte Bjerre Knudsen. She championed early versions of the drugs three decades ago, eventually figuring out how to make a compound that mimics a gut hormone and stays active long enough to have an effect. With the field developing so rapidly, she's eager to see the range of diseases beyond weight and diabetes that the new drugs might treat. "It's so difficult to predict," Knudsen says. "What really excites me is more to take many things forward and figure out which ones are the best." —*With Madison Muller*

■ HOT SEAT: URSULA VON DER LEYEN

EC PRESIDENT

With the pandemic, Russia's invasion of Ukraine and the ensuing energy crisis, European Commission President Ursula von der Leyen has had a lot to grapple with. As she enters her second term, her position appears even more daunting.

Strained relations with China risk sparking a trade war. The return of Donald Trump to the White House threatens to fracture ties with the European Union's closest ally, particularly in supporting Kyiv. The automotive sector—the engine of the region's most powerful economy, Germany—is stalling. And political instability in Berlin and Paris augurs a further rise of the far right. "There is no doubt that we face the greatest risk to the global order in the postwar era," she said at Davos in 2024.

The former German defense minister has tried mightily over the past five years to hold that order together. Her proposal for the long-term budget, expected midyear, will serve as a barometer of the EU's ambitions for restoring its global standing.

The good news is that von der Leyen's first term illustrates the bloc's unofficial motto, "Europe only advances in crisis." In 2020, EU leaders came together and approved an €800 billion ($846 billion) Covid-19 recovery fund financed by joint borrowing. The hope now is that the EU will pool more money for defense and lower barriers to help European companies better compete with the US and China. —*Jorge Valero*

■ ILLUSTRATION BY FROMM STUDIO ■ DATA: AIRFINITY

LIVE EVENTS COME BACK FROM THE DEAD

■ **THE "EXPERIENCE ECONOMY" IS SEEING DOUBLE-DIGIT GROWTH AS CONSUMERS SHELL OUT FOR PREMIUM TICKETS**

▲THE HOT TODDIES JAZZ BAND

■ PHOTO: NINA GALICHEVA

■ **BY PAUL KEEGAN**

The Hot Toddies Jazz Band is ripping through a set of standards to a packed house at the nightclub Somewhere Nowhere on a cold, gray night in Manhattan. There's barely room to move, but a clutch of devoted swing dancers has carved out a section off to one side of the stage. As the trombonist and clarinetist trade hot licks, a bald man wearing spats pulls a woman in a backless dress into an exuberant Lindy Hop.

"It's crazy like this every Wednesday night," Patrick Soluri shouts over the din between sets. Soluri is the producer of this gig through his one-man company, Prohibition Productions. (He's also the drummer.) Revenue from his Jazz Age-themed events has more than doubled since 2019, and he plans to expand beyond New York City in 2025.

From obscure bands in small venues like this to Coldplay selling out 90,000 seats at London's Wembley Stadium for 10 dates next summer, 2025 is shaping up to be a spectacular year for live entertainment. The industry is seeing robust growth as people shift more of their spending to in-person encounters in the so-called experience economy. And they're shelling out extra for premium packages to make concertgoing more memorable, including seats with a better view or elegant suites with luxury food and beverages.

Cirque du Soleil, after emerging from pandemic-induced bankruptcy in late 2020, is back to its pre-Covid numbers for ticket sales and revenue, the company says. It's rolling out new daredevil shows in Honolulu and Nuevo Vallarta, Mexico. Sphere, the multisensory entertainment venue that opened in Las Vegas in 2023, has generated so much excitement that its owner, Sphere Entertainment Co., is planning a second one in Abu Dhabi.

As of early November, industry leader Live Nation Entertainment Inc. had sold more than 20 million tickets via its Ticketmaster subsidiary for Live Nation concerts in 2025, representing double-digit growth from the same point in 2023. Ticketmaster's sales in October were up 15% from a year earlier on all tickets, including Live Nation events, and up 23% on concerts alone.

After overcoming the darkest days of Covid-19, Live Nation took another hit from the Taylor Swift ticketing fiasco of 2022, when frustrated fans were unable to buy tickets to her Eras Tour through Ticketmaster. That led to an outcry over high concert prices and a lawsuit filed in May by the US Department of Justice, along with 30 state and district attorneys general, that seeks to break up Live Nation on charges that it's monopolized its industry. But in the days after Donald Trump won the presidency, the company's stock jumped on the expectation that the new administration will take a more lenient antitrust approach.

Broadway is one part of the industry not breaking box-office records, with ticket sales still below pre-pandemic levels. One theory to explain this is that senior citizens, who make up a sizable portion of the audience, are hesitant to return to large group settings. Another is that remote workers in the suburbs are less willing to buy tickets because now they have to venture all the way into Manhattan; only 14% of theatergoers came from New York City suburbs during the 2022-23 season, according to the Broadway League, the lowest number on record.

The increased digitization of modern life appears to be helping live entertainment, ironically. Streaming services and social media apps allow listeners to discover music from all over the world, leading them to buy concert tickets.

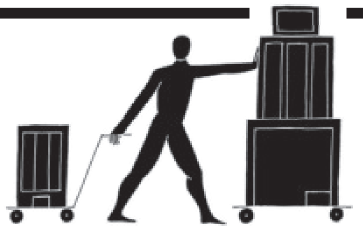
City Winery, a New York-based chain with 14 venues in nine cities that are part music club, part winery, offers wine made on-site, food and concerts by artists such as Los Lobos and Madeleine Peyroux. For 2025, Michael Dorf, the founder and chief executive officer, has plans to build venues in Detroit and Columbus, Ohio, and expects revenue to rise 15% to 20%. Technological advances such as artificial intelligence, great at capturing sight and sound, pose no threat, Dorf says: "When it comes to the other senses—taste and smell and feel—AI has not figured out any kind of algorithm for that. Thank God." Ⓑ

KNOW YOUR OFFICE SPACE JARGON

■ COMMERCIAL REAL ESTATE HAS BEEN IN A FUNK, AND 2025 WON'T OFFER MUCH RELIEF

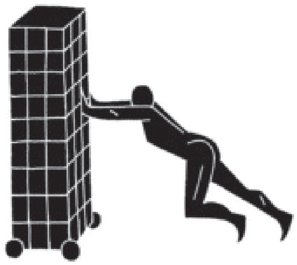
■ BY PATRICK CLARK AND NEIL CALLANAN

Mortgages on most office buildings, shopping malls and apartment complexes require an outsize payment when the loan comes due, typically after five to 10 years. But the rapid runup in interest rates in 2022 made refinancing untenable, because many buildings didn't generate enough rent given the new borrowing costs. Higher rates have translated into lower property values, with US offices and apartment buildings down more than 20% since July 2022. The closest thing to good news is that banks weren't particularly eager to call in their mortgages, because that would force them to recognize losses and write off loans. Instead, they resorted to evolving (and often rhyming) tactics intended to make it through to better times. Here's a quick guide.



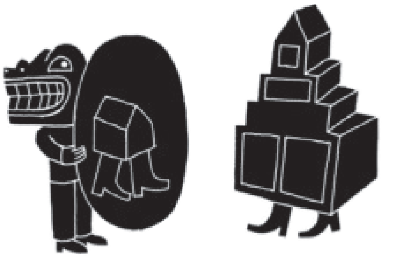
PAYMENT-IN-KIND

If you examine the changes being made to loans these days, it's clear lenders know losses are on the way. Payment-in-kind is a form of financial engineering where borrowers stop making monthly payments, adding to what they must pony up when the loan matures.



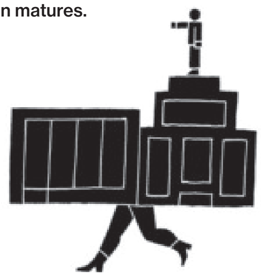
EXTEND AND PRETEND

A popular tactic in the 2008 global financial crisis. Everyone agrees values are down, but they act as though they're not. Rather than require borrowers to refinance maturing loans, lenders simply give them more time to come up with the money. Extend long enough, the theory goes, and maybe property values will recover.



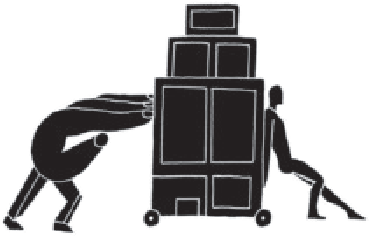
DELAY AND PRAY

A snarkier take on the same idea. Desperation is kicking in, and vulture investors hoping to buy distressed assets for pennies on the dollar start circling—and deriding what lenders insist on telling the public. Conventional wisdom is that there won't be as much distress as there was in the wake of the global financial crisis. That doesn't mean the vultures can't hope.



A/B

Some lenders are splitting up their loans: There's a safer A segment, with a lower interest rate, that gets paid back first. The riskier B portion, by contrast, offers a higher rate but has a lower chance of repayment.



AMEND AND EXTEND

Lenders are less desperate this time around, and they're driving a slightly harder bargain. Rather than hand out extensions for free, banks force borrowers to fork over cash or agree to stricter loan covenants. The end result is similar: Repayments get pushed out.

SURVIVE TILL '25

A popular mantra in recent years because the industry has anticipated falling mortgage rates and revived demand. Although central banks have started easing interest rates, the cost of borrowing hasn't declined as much as many had hoped. So...how about "Get a fix in '26"?

MATURITY WALL

Shifting the problems into the future adds to what's known as a maturity wall: a pile of loans all coming due at once and in need of new financing, which risks gumming up the whole system. If a bunch of borrowers default in unison, banks won't have sufficient capital to absorb the losses. That threatens a wave of fire sales, driving prices down even further. Ⓑ

■ ILLUSTRATIONS BY BORIS PRAMATAROV

CSA
SINGAPORE

Building Trust in the Digital Age

“To build trust, you need people to meet. You can’t just do that from behind keyboards.”

Christopher Ahlberg, Chief Executive Officer of cybersecurity company Recorded Future, put his words into action at the ninth edition of Singapore International Cyber Week (SICW) from October 14 to 17, 2024, where more than 13,000 global policymakers, industry leaders and cybersecurity experts rallied under the theme of “Trust and Security in the Digital Era.”

Enabling Timely Conversations

Across key events including the World Economic Forum Community Meeting, the ASEAN Ministerial Conference on Cybersecurity (AMCC) and a series of High Level Panels, the Cyber Security Agency of Singapore (CSA) brought together more than 90 countries and regions, including China, the European Union, New Zealand, the Philippines, Russia, Saudi Arabia, Ukraine and the United States at SICW 2024.

This assembly of diverse minds, and even some with opposing worldviews, reflects Singapore's determination to build an inclusive and resilient cyberspace, with trust as a first principle. In a year of particularly high stakes, amid growing geopolitical tensions and 40 national elections, SICW’s agenda extended beyond classical cybersecurity themes to include election security, the regulation of big tech and renewed global appetite for cybersecurity cooperation.

Building Interoperable Systems

Trust is the foundation for strengthening our collective cybersecurity defenses, and requires frank, multilateral dialogue. As Judith Collins, New Zealand’s Minister Responsible for the Government Communications Security Bureau, remarked, “I think it's really important for us to deserve the trust that we want people to put in us. We’ve got to be very transparent, and keep up to date against threats.”

Trust further enables follow-on action. In a milestone example of translating international dialogue into cybersecurity architecture, the ASEAN Regional Computer Emergency Response Team, launched at SICW 2024, will strengthen information-sharing and response coordination among ASEAN member states on cyber threats and online scams. This physical facility, located in Singapore, will also serve as a dedicated space for capacity-building programs.

Meanwhile, mutual recognition agreements signed between Singapore and Germany, as well as Singapore and the Republic of Korea, at SICW 2024’s International Internet of Things Security Roundtable will enable manufacturers of smart consumer devices to save time on duplicated testing and more easily enter new markets.

Safeguarding Emerging Technologies

As digital innovation surges, trust also underpins the safe, responsible use of rapidly evolving technologies like quantum computing and artificial intelligence. As Teo Chee Hean, Singapore’s Senior Minister and Coordinating Minister for National Security, pointed out, “there is now widespread recognition that [the internet] has become a source of division… We should not repeat these mistakes with new technologies.”

SICW
INTERNATIONAL COOPERATION:
WORKING TOGETHER TO COMBAT SCAMS

A roundtable at SICW 2024, bringing together experts from government, industry and the non-profit sector

To contribute to building the foundation for the safe adoption of emerging technologies, CSA launched the Guidelines and Companion Guide on Securing Artificial Intelligence Systems at SICW 2024.

Developed by referencing established international guidelines, including those by the United Kingdom, the United States and MITRE, these guidelines equip enterprises with best practices for adopting AI at every stage, from planning to disposal.

Creating a Rules-Based Cyberspace

In the borderless digital domain, SICW 2024 has reinforced that trust begins with replacing an ungoverned cyberspace with shared norms of cyber behavior, as well as best practices for deterring cyber threats.

ASEAN’s formal adoption of the United Nations’ 11 norms of responsible state behavior in cyberspace is a case in point. At SICW 2024, the completed Norms Implementation Checklist was launched, a testament to the commitment of ASEAN Member States to taking practical steps to support the implementation of these norms.

As David Koh, Commissioner of Cybersecurity and Chief Executive of CSA, sums up, “as technology changes, we have to keep pace. We’re not building a static fort that stands the test of time, but dealing with a thinking, determined, cunning adversary who’s doing its best to get past our defenses. Only by strengthening global trust and cooperation will we be able to reap the shared dividends of digitalization.”

PRIVATE CREDIT EYES MAIN STREET

■ **NONBANK LENDERS ARE MAKING IT EASY FOR ORDINARY PEOPLE TO BUY THEIR PRODUCTS**

■ **BY DENITSA TSEKOVA**

All it took for Jess Dato Paliogiannis to become an investor in the esoteric world of private credit was a few taps on her mobile phone. The 30-year-old New Yorker, an operations consultant to startups, used the Titan app to put $2,000 into a fund managed by the global investing giant Carlyle Group Inc. "It was exciting to invest in something that traditionally was not available to retail investors," says Dato Paliogiannis, who recently sold the position, scoring a 37% gain over two years, after fees. Now she's on the lookout for easier ways to access private credit on other platforms.

Dato Paliogiannis is just the kind of person the industry is trying to woo. Private lenders have spent the past dozen years minting billionaires by usurping traditional Wall Street banks and packaging their risky corporate loans into products that have become staples of insurers and pension funds. But with interest from large institutions tapering off, they're going after Main Street. "We are probably in the second or the third inning in the expansion of these private credit products in the broader, mass-affluent market," says Shane Clifford, head of global wealth at Carlyle. "There's still significant upside to go from here."

So far, retail investors are jumping in mainly through interval funds, which get their name from allowing people to take their money out only after set periods, making them semi-liquid. Interval funds have ballooned to oversee $85 billion of assets, up from about $25 billion four years ago; a record 43 new funds were registered in 2024.

The direct lenders' ambitions are much bigger, however: They want to offer a way for anyone with a Charles Schwab or Robinhood account to get involved in private credit through exchange-traded funds. Two ETFs with exposure to private credit began trading in December, and Apollo Global Management Inc. and State Street Global Advisors Ltd. are hoping for a green light from the US Securities and Exchange Commission in 2025 for their own ETF that would invest in private credit.

The prospect of an ensuing wave of retail investment has consumer advocates warning that private credit is too risky for retail investors. These calls echo regulators' wider concerns about the lack of transparency in private loan valuations, which they say could jeopardize broader financial stability.

▲**DATO PALIOGIANNIS**

The problem, the watchdogs say, is that the debt underlying the private credit products isn't widely traded, and the funds get to decide what their loans are worth, which could mask signs of distress that public markets would expose. Also, the borrowers behind the loans aren't held to the same reporting requirements as listed companies. With interval funds, the period an investor has to wait to pull money out could stretch for months. The money could end up trapped if a fund's loans go bad and the net asset value suddenly plummets, causing the fund manager to close it for redemptions.

Direct lenders argue that they have the expertise to ensure the products they sell are sound. And of the risk to broader financial stability, Apollo CEO Marc Rowan has argued that banks carry more debt than private credit firms, so removing loans from the banking system lowers its overall leverage.

The private credit craze dates to the aftermath of the global financial crisis of 2008, when banks pulled back from risky loans and lenders outside the regulated financial system stepped in. Since 2015 the market has roughly tripled in size, to $1.6 trillion, growing to encompass traditional direct lending to smaller companies, buyout financing, and real estate and infrastructure debt. Market research firm Cerulli Associates estimates that retail's contribution to the asset class will climb to 23%, from 13% now, in the next three years.

Mobile apps make it easier to invest, but the fees for private credit can turn people off. For interval funds they average around 2.5%, among the highest charged to individual investors for any product, compared with 0.6% for the average ETF, according to Morningstar Inc. A private credit ETF that allows investors to take out their money on any trading day would open the asset class to even more people. State Street and Apollo have offered glimpses into how they could make that possible in their filing to the SEC: Apollo would provide daily liquidity by offering to buy back the investments, though that could come with limits.

The idea of an ETF is intriguing to Sam Slaughter, 62, who's put $250,000, a little less than a 10th of his nest egg, into private credit funds. He started investing three years ago, when his adviser recommended the Blackstone Private Credit Fund, or BCRED. "After fees, the rates of return have been very good," he says. He's not worried about the risks: "I particularly feel comfortable because Blackstone is a good outlet. If they started to feel that things were not going well, they would get us out." —*With Vildana Hajric*

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American Red Cross

THANK YOU

As we look to the year ahead, we are grateful for our Annual Disaster Giving Program and Disaster Responder members, whose incredible generosity fuels our continuous response to disasters of all sizes — from hurricanes to home fires — providing hope when help can't wait.

American Red Cross

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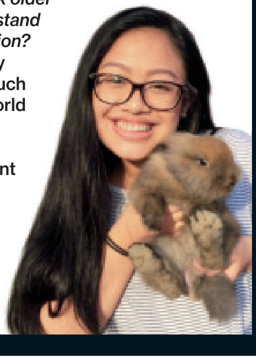
■ ADIRA PUTRI, JAKARTA

■ *What's the last big purchase you made?*
Nothing, as I am still a student.

■ *What are you looking forward to most in 2025?*
Working at a full-time job.

■ *What do you think older people don't understand about your generation?*
They might not fully understand how much our generation's world revolves around rapid technological change and constant connectivity.

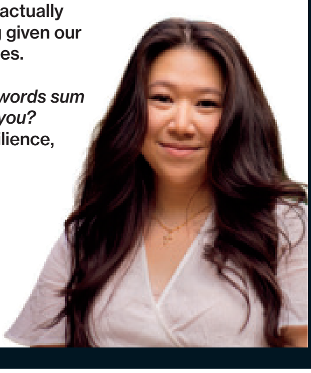


■ NAT TADJUDIN, ATLANTA

■ *What are you most looking forward to in 2025?*
Having my frontal lobe developed! Also accelerating my career.

■ *What do older people not understand about your generation?*
That we are actually hardworking given our circumstances.

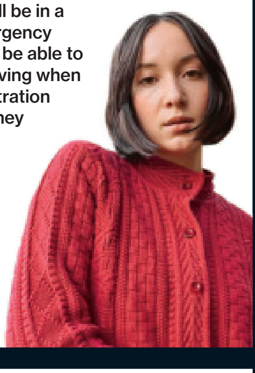
■ *What five words sum up 2025 for you?*
Change, resilience, innovation, challenges and hope.



■ SOPHIA INGRAM, DENTON, TEXAS

■ *What are you most looking forward to in 2025?*
Moving out of my outdated apartment and into a newer building.

■ *What worries you?*
That I've been spending money frivolously, and I will be in a bad spot if an emergency happens, or I won't be able to afford the cost of living when the Trump administration enacts the tariffs they promised.



QUARTER-LIFE CRISIS?

■ **THE 21ST CENTURY IS HAVING A MILESTONE BIRTHDAY. WE ASKED PEOPLE ALSO TURNING 25 ABOUT THEIR HOPES AND FEARS FOR THE NEW YEAR**

■ INTERVIEWS BY REYHAN HARMANCI ■ *EDITED FOR CLARITY AND LENGTH*

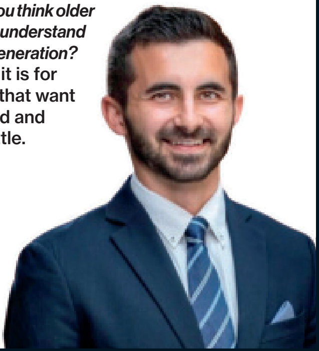
■ PABLO TORNE PANO, LOS ANGELES

■ *What's the last big purchase you made?*
A moped ($2,200).

■ *What's the next big purchase you hope to make?*
A business or investment property.

■ *What are you worried about?*
Not being retired by 45.

■ *What do you think older people don't understand about your generation?*
How lonely it is for the people that want to work hard and complain little.

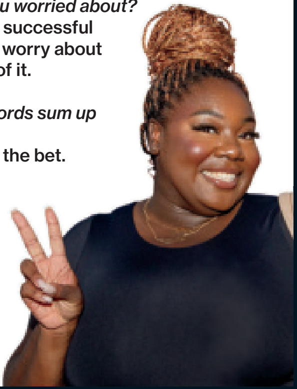


■ JADE WALTERS, CHICAGO

■ *What's the last big purchase you made?*
A solo birthday trip to Cancún at an all-inclusive resort. I spent around $2,700, and it was worth every single penny. It was my first time traveling solo internationally, and I left feeling so brave and rejuvenated.

■ *What are you worried about?*
Despite being successful in my career, I worry about the longevity of it.

■ *What five words sum up 2025 for you?*
You are worth the bet.

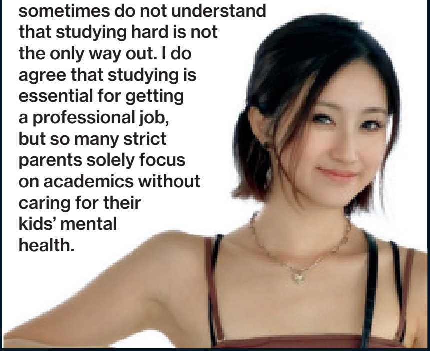


■ GIGI BAO, OXNARD, CALIFORNIA

■ *What's the last big purchase you made?*
A car ($28,000).

■ *What's the next big purchase you hope to make?*
I really want a Dyson V15 vacuum.

■ *What do you think older people don't understand about your generation?*
Back at home in Hong Kong, the older people sometimes do not understand that studying hard is not the only way out. I do agree that studying is essential for getting a professional job, but so many strict parents solely focus on academics without caring for their kids' mental health.



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The most innovative companies run on

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TREK

Square

asana

LG

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Hartsfield-Jackson
Atlanta International Airport

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Your AI, built on your data
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TURNING POINT

THE QUANTUM OPPORTUNITY

Many people consider quantum computing the next big thing. But France-headquartered Pasqal believes the quantum advantage is already here, and that businesses have no time to lose.

Discover six turning points in Pasqal's long journey from theory to practice.

LEAVING THE LAB

In 2001, physicist Georges-Olivier Reymond was the first to trap single atoms – the building blocks of a quantum computer – with optical tweezers. At the time, quantum computing still seemed a long way off.

It took nearly 20 years for Reymond and his former colleagues to be convinced that quantum technology was finally ready to leave the lab. In March 2019, they co-founded Pasqal.

BUILDING REAL SOLUTIONS

From the start, Pasqal wanted to solve real-world computational challenges. So when French electricity company EDF asked Pasqal to optimize the charging of the country's future fleet of 30 million electrical vehicles, the team rose to the challenge.

A look inside the core of Pasqal's neutral atom quantum processor.

GAINING TRACTION

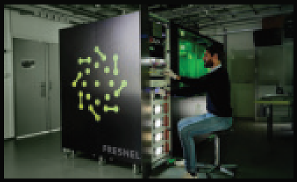
Pasqal has gone on to develop quantum solutions for use cases that include optimizing air traffic routes, accelerating pharmaceutical development and assessing credit risks. Each of these computational challenges would have taken classical computers years, if not decades, to solve.

REACHING NEW HEIGHTS

Pasqal secured Temasek as the lead investor for its €100 million Series B round in 2023, its largest round to date. In June 2024, it delivered its very first quantum processor to the French quantum center – the culmination of nearly six years of work.

JOINING FORCES

For Pasqal, the quantum race is not a zero-sum game. In collaboration with IBM, Pasqal is creating a hybrid ecosystem of classical supercomputers and quantum computers, so customers don't have to bet on a single technology.



Fresnel, Pasqal's first commercial quantum computer.

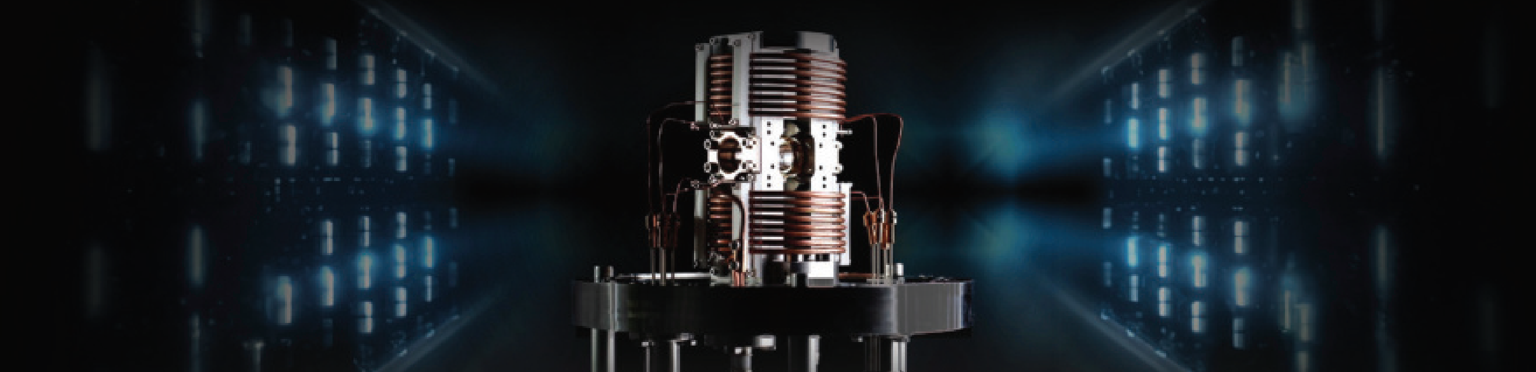
FINDING THE PATH

Pasqal's agreement with gas giant Aramco to install Saudi Arabia's first quantum computer in 2025 is a strong signal to engage with quantum now, rather than wait.

As Pasqal develops more quantum power with fewer errors, the team is buoyed by the words of co-founder, Alain Aspect, who won the Nobel Prize for Physics in 2022. "Science demonstrates that there is no limitation. Innovation is finding the path," quotes Reymond.

Business is rarely a straight line.

Wherever it takes you, HSBC can help.



COMPANIES TO WATCH

■ **Analysts at Bloomberg Intelligence—who track some 2,000 companies in industries ranging from apparel and autos to finance and food—have identified 50 worth watching carefully in the year ahead. The analysis combines possible catalysts for change such as new leadership, asset sales or acquisitions, and plans for new products and services. When building the list, BI focused on the potential effects of policies of the incoming US administration, ongoing geopolitical conflicts, and rapid changes that include the rise of artificial intelligence and electric vehicles. —*Tim Craighead***

All figures compiled or calculated based on the most recent company reports and Bloomberg consensus estimates. Market capitalization figure as of Dec. 1, 2024.

ADECCO

Market cap ($b)	**4.5**
Top executive	**Denis Machuel**
Legal name	**Adecco Group AG**
2025 estimated revenue change	**+2%**
2025 estimated sales ($b)	**25**

The recruiter has seen earnings drop for the past three years as clients took in fewer temporary workers and low staff turnover kept a lid on replacement hiring. Election clarity, lower inflation and falling interest rates should help boost confidence and increase staffing demand, pointing to a return to earnings growth for Adecco, which generates 75% of its revenue from placing temporary workers. —*Stuart Gordon*

ADVANCED INFO SERVICE

Market cap ($b)	**24**
Top executive	**Somchai Lertsutiwong**
Legal name	**Advanced Info Service Pcl**
2025 estimated revenue change	**+3%**
2025 estimated sales ($b)	**6.3**

The Thai telecommunications carrier's 2025 profit should surprise on the upside as mobile users move to higher-priced packages and the company cuts unprofitable low-end plans. Those changes could reverse a three-year slide in average revenue generated per user, and income from roaming charges is likely to jump with expected growth in Thai tourism. —*Chris Muckensturm*

■ ILLUSTRATION BY BRYSON LEE

AIRBUS

Market cap ($b)	120
Top executive	**Guillaume Faury**
Legal name	**Airbus SE**
2025 estimated revenue change	**+10%**
2025 estimated sales ($b)	80

The European aerospace bellwether aims to boost profits and cash flow in 2025 with increased production of the top-selling A320. The company's drive for higher volume will be a litmus test for a supply chain that has struggled to return to pre-pandemic levels of output. The difficulties at rival Boeing offer Airbus a chance to tighten its ties to key suppliers, which could help reinforce its market-share lead. ––*George Ferguson*

ASTRAZENECA

Market cap ($b)	210
Top executive	**Pascal Soriot**
Legal name	**AstraZeneca Plc**
2025 estimated revenue change	**+8%**
2025 estimated sales ($b)	57

A slew of late-stage data points is due in 2025 from clinical trials for new cancer and respiratory treatments, which will focus attention on the drugmaker's industry-leading sales growth potential. A possible slowing of AstraZeneca's China business, caused by both the weakening economy and an investigation into medical-insurance fraud by its former China head, may contribute to conservative management guidance for 2025-26. Still, midteens earnings growth looks achievable given the company's global exposure and pipeline of new drugs. ––*John Murphy*

BANK OZK

Market cap ($b)	5.6
Top executive	**George Gleason**
Legal name	**Bank OZK**
2025 estimated revenue change	**0%**
2025 estimated sales ($b)	1.7

With the Federal Reserve easing rates, the Arkansas bank faces declining margins and slower loan growth. Bank OZK's portfolio has more floating-rate loans (which will reprice lower with any rate cuts) than many of its peers, and its costs are likely to be stickier because it relies on fixed-rate certificates of deposit to fund its balance sheet. ––*Herman Chan*

BROADCOM

Market cap ($b)	777
Top executive	**Hock Tan**
Legal name	**Broadcom Inc.**
2025 estimated revenue change	**+16%**
2025 estimated sales ($b)	62

Providing a unique combination of advanced semiconductors and infrastructure software, the chipmaker is positioned for accelerated growth through 2025. Broadcom is among the leading suppliers of semiconductors used in advanced networks that connect artificial intelligence computers and data centers, and it has a growing business selling custom AI chips to Google and Meta Platforms Inc. Its purchase last year of VMware significantly expanded its software business, which now accounts for 40% of total revenue. ––*Kunjan Sobhani*

CADENCE DESIGN

Market cap ($b)	85
Top executive	**Anirudh Devgan**
Legal name	**Cadence Design Systems Inc.**
2025 estimated revenue change	**+13%**
2025 estimated sales ($b)	5.3

Sales at the provider of software and hardware used by chipmakers to create and analyze semiconductors are poised to climb as the company closes more deals for higher-priced artificial-intelligence-enabled tools. Its next-generation offerings help design innovative products such as high-bandwidth memory and three-dimensional chips. Cadence sells its current lineup to 19 of the 20 largest semiconductor companies, and since it began rolling out its latest tools in 2024, it's gotten early orders from major players like Nvidia Corp. and Samsung Electronics Co. ––*Niraj Patel*

CHINA HONGQIAO

Market cap ($b)	14
Top executive	**Zhang Bo**
Legal name	**China Hongqiao Group Ltd.**
2025 estimated revenue change	**+3%**
2025 estimated sales ($b)	21

Costs of alumina, the primary feedstock for aluminum, should fall with new supplies coming online. China's economic stimulus and green infrastructure push will also support demand for the relatively easily recycled metal. And Hongqiao is also diversifying with a project in Guinea that contains the world's largest and highest-grade reserves of iron ore. ––*Michelle Leung*

■ ILLUSTRATIONS BY BRYSON LEE

CITIC SECURITIES

Market cap ($b)	**57**
Top executive	**Zhang Youjun**
Legal name	**Citic Securities Co.**
2025 estimated revenue change	**+14%**
2025 estimated sales ($b)	**10**

Revenue at China's largest broker is poised to benefit from Beijing's push to boost stock market liquidity, and it could be among the two or three firms prioritized by regulators to expand overseas. Citic Securities' Hong Kong unit, CLSA, is positioned for accelerating demand in offshore wealth-management products through several regulator-approved systems. It's also poised for a pickup in initial public offerings on the Hong Kong exchange. ––*Sharnie Wong*

COLGATE

Market cap ($b)	**78**
Top executive	**Noel Wallace**
Legal name	**Colgate-Palmolive Co.**
2025 estimated revenue change	**+3%**
2025 estimated sales ($b)	**21**

Hitting management's growth guidance looks increasingly challenging for the maker of toothpaste and other consumer products. In early 2024, Colgate posted strong results, but a sharp slowdown in third-quarter sales for its North America business bodes poorly for 2025. For now, this downward trend offsets the long-term expansion opportunity in its Hill's premium pet food, which the company says has reached just 5% of its target market in the US. ––*Diana Gomes*

EMERSON ELECTRIC

Market cap ($b)	**76**
Top executive	**Lal Karsanbhai**
Legal name	**Emerson Electric Co.**
2025 estimated revenue change	**+5%**
2025 estimated sales ($b)	**18**

Completing the proposed takeover of Aspen Tech—Emerson currently owns 57%—will strengthen the industrial automation company's software offerings and allow it to reduce costs. Management's guidance for total sales growth of 3% to 5% for 2025 also looks too conservative, with upside coming from accelerating US spending on factories and infrastructure projects. Emerson's potential sale of its tools business could support larger stock repurchases as well. ––*Karen Ubelhart and Mustafa Okur*

ESSEX PROPERTY

Market cap ($b)	**20**
Top executive	**Angela Kleiman**
Legal name	**Essex Property Trust Inc.**
2025 estimated revenue change	**+4%**
2025 estimated sales ($b)	**1.8**

The California REIT's apartment properties are poised to produce stronger rental growth, leading to higher revenue than analysts and investors expect. Essex's West Coast markets, which continue to benefit from tight housing supply and solid demand, should outperform Sun Belt growth through 2025. ––*Jeff Langbaum*

ESTÉE LAUDER

Market cap ($b)	**26**
Top executive	**Stéphane de La Faverie**
Legal name	**Estée Lauder Cos.**
2025 estimated revenue change	**+5%**
2025 estimated sales ($b)	**15**

The skin-care company's plan to rekindle profitability is running into delays. If new CEO Stéphane de La Faverie, who moves into the corner office in January, decides to take more aggressive action, restructuring costs could exceed the $500 million to $700 million announced last February. A lack of a competitive edge from subsidiary brands such as Mac and Too Faced and an outsize dependence on troubled Asian duty-free shops for its Estée Lauder and La Mer lines will keep a lid on sales for 2025. ––*Deborah Aitken*

FOX

Market cap ($b)	**20**
Top executive	**Lachlan Murdoch**
Legal name	**Fox Corp.**
2025 estimated revenue change	**+3%**
2025 estimated sales ($b)	**15**

Even as streaming threatens broadcast TV, Fox is poised to hit $3.5 billion in operating profit for the year ending in June 2025. A potent mix of news and live sports channels keeps the company entrenched in legacy TV's sweet spot, with record spending on political ads, Super Bowl promotions and robust ratings at Fox News playing to its advantage. ––*Geetha Ranganathan*

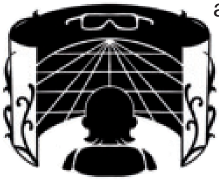
HSBC

Market cap ($b)	167
Top executive	Georges Elhedery
Legal name	HSBC Holdings Plc
2025 estimated revenue change	-2%
2025 estimated sales ($b)	65

If HSBC's new CEO successfully implements a planned streamlining effort, 2026 pretax profit could be about $2.4 billion higher than expected, with estimates rising through 2025. While the market appears focused on risks related to China's slowing economy, the bank has taken provisions against property losses, and there's room for it to aggressively cut costs. Revenue at its asset-management unit is also benefiting from growing wealth in Asia. ——*Tomasz Noetzel*

IMAX

Market cap ($b)	1.3
Top executive	Rich Gelfond
Legal name	Imax Corp.
2025 estimated revenue change	+10%
2025 estimated sales ($b)	416



The entertainment technology company, known for its gargantuan screens, is likely to buck an uncertain outlook for traditional box-office demand based on soft consumer spending. Imax is positioned to see profit growth of about 16% annually through 2026, driven by share gains in both mature and emerging markets. Theater operators including AMC Entertainment Holdings Inc. and Wanda Film Holding Co. are installing its systems, and directors such as James Cameron are using its technology to produce their films. ——*Kevin Near*

INSULET

Market cap ($b)	19
Top executive	Jim Hollingshead
Legal name	Insulet Corp.
2025 estimated revenue change	+2.4%
2025 estimated sales ($b)	18

The medical device marker's US approval for the Omnipod 5—the first wearable automated insulin delivery system—should propel sales growth by almost 20% in 2025 after a strong start in 2024. Insulet's technology should help support market-share gains in the treatment of people with Type 1 diabetes, as it becomes the standard of care. The expected additional approval for the Omnipod 5 to support Type 2 patients should further bolster the company's revenue. ——*Matt Henriksson*

ITV

Market cap ($b)	3.3
Top executive	Carolyn McCall
Legal name	ITV Plc
2025 estimated revenue change	-2%
2025 estimated sales ($b)	4.4

With lackluster demand for both content and TV advertising, the operating profit of the independent UK broadcaster risks falling short of market expectations in 2025. Estimates predicting a rebound for ITV's studio arm—which accounts for about half of its top-line growth—seem to ignore these challenges. And a temporary ad-sales boost from the broadcasting of European Championship soccer games last summer creates a high bar for growth comparisons in 2025. ——*Tom Ward*

KLA

Market cap ($b)	89
Top executive	Rick Wallace
Legal name	KLA Corp.
2025 estimated revenue change	+11%
2025 estimated sales ($b)	12

As semiconductor foundries take on advanced chips such as the high-bandwidth memory needed for high-performance artificial intelligence servers, sales of KLA's tools for inspecting and measuring them for consistency and defects are poised to surge. The company is the market leader in such equipment, which chipmakers need to ensure quality and keep production flowing smoothly. ——*Masahiro Wakasugi*

KOTAK MAHINDRA BANK

Market cap ($b)	41
Top executive	Ashok Vaswani
Legal name	Kotak Mahindra Bank Ltd.
2025 estimated revenue change	-11%
2025 estimated sales ($b)	7.5

With a central bank ban on it opening new credit card and online accounts, the Indian bank's profit targets look difficult to meet. Kotak Mahindra, with its relatively small branch network, is more reliant on digital banking than its peers. That puts its growth in jeopardy, even as it seeks to bolster its technology systems and compliance following early 2024 digital outages that kept customers from accessing accounts. ——*Sarah Jane Mahmud*

■ ILLUSTRATIONS BY BRYSON LEE

MICRON TECHNOLOGY

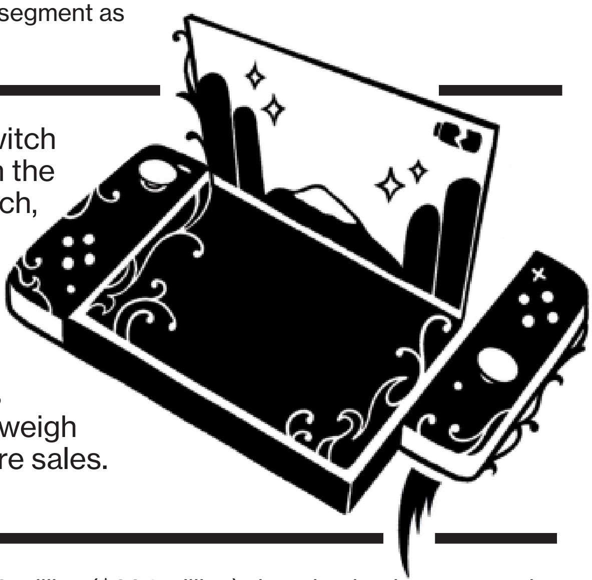
Market cap ($b)	**109**
Top executive	**Sanjay Mehrotra**
Legal name	**Micron Technology Inc.**
2025 estimated revenue change	**+42%**
2025 estimated sales ($b)	**39**

The year looks promising for the chipmaker as demand for its high-bandwidth memory chips accelerates and sales of other AI-related products keep growing. In addition, as rival makers of memory limit production of lower-bandwidth products, supplies are likely to be constrained, lifting chip prices and supporting Micron's profit margins in this segment as well. —*Jake Silverman*

NINTENDO

Market cap ($b)	**77**
Top executive	**Shuntaro Furukawa**
Legal name	**Nintendo Co.**
2025 estimated revenue change	**+27%**
2025 estimated sales ($b)	**11**

The successor to the Switch console isn't expected in the fiscal year ending in March, and the delayed rollout could weaken results. Heavier operating costs before the new gadget's debut add to profit risks as Nintendo's now-outdated consoles weigh on hardware and software sales. —*Nathan Naidu*



NORDEA

Market cap ($b)	**39**
Top executive	**Frank Vang-Jensen**
Legal name	**Nordea Bank Abp**
2025 estimated revenue change	**-2%**
2025 estimated sales ($b)	**12**

The Scandinavian bank's €250 million ($264 million) share buyback announced last quarter should be seen as just a start, with such purchases and dividends combined to likely top €1 billion in coming years—far exceeding market expectations. Nordea's profitable Nordic commercial and consumer businesses, strong asset quality and the buffer it's created against bad loans all support the surprising returns to shareholders. —*Mar'Yana Vartsaba*

NORFOLK SOUTHERN

Market cap ($b)	**62**
Top executive	**Mark George**
Legal name	**Norfolk Southern Corp.**
2025 estimated revenue change	**+4%**
2025 estimated sales ($b)	**13**

After suffering a difficult two years—a devastating derailment, a contentious proxy battle and the termination of its CEO—the railroad can expect better prospects in 2025. A refocus on operating a safer and more efficient network, along with a recovering trucking market that helps its intermodal business, bodes well for Norfolk Southern's volumes and profit margins. —*Lee Klaskow*

OKTA

Market cap ($b)	**14**
Top executive	**Todd McKinnon**
Legal name	**Okta Inc.**
2025 estimated revenue change	**+9%**
2025 estimated sales ($b)	**2.8**

The continued threat of hacking has set the security software provider up for a sales resurgence in 2025, despite suffering some debilitating breaches itself in 2023. Okta's customer retention rates are stabilizing, and the company is adding new clients. Identity security (where Okta is a leader) is also poised to grow, given the vast numbers of compromised passwords still in use. —*Mandeep Singh*

OMV

Market cap ($b)	**13**
Top executive	**Alfred Stern**
Legal name	**OMV AG**
2025 estimated revenue change	**-6%**
2025 estimated sales ($b)	**35**

An improving political situation in Libya, which accounts for about 10% of the Austrian company's capacity, should boost OMV's oil production. And the profitability of its chemical business is recovering from 2023's losses. These factors put OMV on track to beat earnings estimates in 2025 while sustaining its strong balance sheet and hefty dividend payout. —*Salih Yilmaz*

PALANTIR

Market cap ($b)	151
Top executive	Alex Karp
Legal name	Palantir Technologies Inc.
2025 estimated revenue change	+25%
2025 estimated sales ($b)	3.5

While the software company has benefited from sessions aimed at giving clients a better understanding of how artificial intelligence can help their businesses, the market's revenue expectations appear overly optimistic. Palantir's customer base remains relatively small, and it's behind rivals such as OpenAI, Anthropic, Meta Platforms and Google in deploying its own large language model. ——*Mandeep Singh*

PAYPAL

Market cap ($b)	87
Top executive	Alex Chriss
Legal name	PayPal Holdings Inc.
2025 estimated revenue change	+6%
2025 estimated sales ($b)	33

New partnerships with Adyen and Amazon Prime as well as efforts to monetize undertapped assets like Venmo's and Paypal's services for small and medium-size businesses should support surprisingly strong revenue growth and operating margins. About $6 billion in share buybacks will further boost earnings per share. ——*Diksha Gera*

PERSIMMON

Market cap ($b)	5.1
Top executive	Dean Finch
Legal name	Persimmon Plc
2025 estimated revenue change	+10%
2025 estimated sales ($b)	4

The UK builder is on track to complete at least 12,000 homes in 2025, versus market expectations of 11,500. Improving demand, lower mortgage rates, a wealth of new developments and a relaxation of government planning constraints augur greater building volumes and pretax profits that exceed expectations. ——*Iwona Honenko*

PORSCHE

Market cap ($b)	57
Top executive	Oliver Blume
Legal name	Dr. Ing. h.c. F. Porsche AG
2025 estimated revenue change	+5%
2025 estimated sales ($b)	43

The German automaker is raising prices—the average sticker on a 911 has jumped almost a third since 2019—and its super-wealthy clients don't seem to mind. This will help lift operating margins to about 18% in 2025-26, narrowing the gap with industry leader Ferrari SpA and its 28% margins. Porsche's five new models during 2024-25, including a 911 hybrid and refreshed versions of the Panamera and Cayenne, will help further boost volumes and prices. And flagging interest in less-profitable electric vehicles should also enhance profitability. ——*Michael Dean*

RÉMY COINTREAU

Market cap ($b)	3.1
Top executive	Éric Vallat
Legal name	Rémy Cointreau
2025 estimated revenue change	+2%
2025 estimated sales ($b)	1.1

The French booze maker has been suffering as high interest rates make it too costly for wholesalers to hold inventories of pricey spirits such as cognac. Tariffs as high as 39% on brandy and cognac sales to China announced in October add to the pain. But with interest rates falling and consumer confidence stabilizing, a US sales rebound should be in the cards for 2025. ——*Duncan Fox*

RWE

Market cap ($b)	25
Top executive	Markus Krebber
Legal name	RWE AG
2025 estimated revenue change	-3%
2025 estimated sales ($b)	26

The German utility is on track to beat profit estimates as power prices stabilize and it expands solar and wind capacity. RWE's 2023 acquisition of Con Edison Clean Energy has positioned it for accelerated expansion in the US, where it's poised to jump to the No. 2 spot in renewable energy capacity by 2027. Rising demand for green power tied to artificial intelligence also points toward faster growth. ——*Patricio Alvarez*

■ ILLUSTRATIONS BY BRYSON LEE

SHANGHAI AIRPORT

Market cap ($b)	12
Top executive	**Zhang Yongdong**
Legal name	**Shanghai International Airport Co.**
2025 estimated revenue change	**+12%**
2025 estimated sales ($b)	**1.9**

Despite Beijing's efforts to goose the economy, Shanghai Airport's profits are set to disappoint. While passenger traffic has recovered to pre-Covid levels and is likely to climb, rental revenue from concourse shops, which is linked to retail sales, is falling short. During the pandemic, consumers in China pivoted away from airport purchases and toward buying online and at local stores. —*Denise Wong*

SIBANYE STILLWATER

Market cap ($b)	2.9
Top executive	**Neal Froneman**
Legal name	**Sibanye Stillwater Ltd.**
2025 estimated revenue change	**+4%**
2025 estimated sales ($b)	**6.3**

As Americans and Europeans cool on electric vehicles, combustion-engine and hybrid cars are accounting for a greater share of purchases, driving demand for platinum needed in their construction. That offers the prospect of higher earnings in 2025 for miner Sibanye Stillwater after three straight years of declines. The South African company could also see higher prices for palladium if additional sanctions are imposed on Russia, a major supplier of the metal. And with a quarter of the company's revenue coming from gold mining, recent record prices offer an additional cushion. —*Emmanuel Munjeri*

SIGNIFY

Market cap ($b)	2.9
Top executive	**Eric Rondolat**
Legal name	**Signify NV**
2025 estimated revenue change	**+2%**
2025 estimated sales ($b)	**6.6**

Homebuyers are usually keen to make the house their own, which often means switching out the light fixtures. That's why the world's largest lighting company can expect to see demand for its products strengthen, as falling interest rates in the US and Europe make mortgages more affordable, spurring property transactions. Signify is also proactively cutting costs of more than €200 million annually, helping to boost profit margins. —*Bhawin Thakker*

SLB

Market cap ($b)	62
Top executive	**Olivier Le Peuch**
Legal name	**Schlumberger NV**
2025 estimated revenue change	**+5%**
2025 estimated sales ($b)	**38**

After a stretch of soft oil and gas prices, energy investors are understandably fixated on data showing fewer drilling rigs being used for exploration, but expectations appear too pessimistic for the global oilfield services leader. About 30% of SLB's business is centered on helping producers boost output from existing sites, and when the company closes its acquisition of production-chemicals maker ChampionX in early 2025, these businesses will approach 40% of revenue. —*Scott Levine*

SUBSEA 7

Market cap ($b)	4.9
Top executive	**John Evans**
Legal name	**Subsea 7 SA**
2025 estimated revenue change	**+6%**
2025 estimated sales ($b)	**7.2**

Growth in offshore energy projects augurs increased revenue and profit margins for the marine construction company. Strong orders for conventional oil and gas installations have been complemented by rising interest in offshore wind farms. The increased demand means Subsea 7 will likely benefit from higher-margin contracts across many regions. —*Will Hares*

SUN HUNG KAI

Market cap ($b)	29
Top executive	**Raymond Kwok Ping-luen**
Legal name	**Sun Hung Kai Properties Ltd.**
2025 estimated revenue change	**+2%**
2025 estimated sales ($b)	**11**

The Hong Kong developer is poised for a rebound in revenue and earnings after suffering through a depressed housing market over the past two years. Falling interest rates will likely speed up sales of completed homes, and contracts for unbuilt properties could be more than 20% above their targets. An economic stimulus package from China has boosted interest from mainland buyers for new projects on Hong Kong Island and in Kowloon. —*Patrick Wong*

TAPESTRY

Market cap ($b)	14
Top executive	Joanne Crevoiserat
Legal name	Tapestry Inc.
2025 estimated revenue change	+3%
2025 estimated sales ($b)	6.9

The leather-goods maker is strengthening the lineup at its leading label, Coach, whose sales have managed to beat a recent slowdown in the purchase of midlevel luxury goods. With North America accounting for about two-thirds of those sales, a pickup in US consumer sentiment could lift its Kate Spade brand as well. After agreeing to terminate a merger with Capri Holdings Ltd., owner of the struggling Michael Kors label, Tapestry has the financial firepower to look for other deals and increase its share buybacks. ––*Deborah Aitken*

TELADOC

Market cap ($b)	1.9
Top executive	Chuck Divita
Legal name	Teladoc Health Inc.
2025 estimated revenue change	-1%
2025 estimated sales ($b)	2.5

The virtual health-care provider is trying to heal itself after high marketing costs at its BetterHelp mental health unit sparked a significant disappointment in mid-2024. With new CEO Chuck Divita, who took over in June, Teladoc is pursuing international expansion and a deeper integration into insurance plans. But those efforts are moving ahead slowly, making the market's expectations for the first half of 2025 appear overly optimistic. ––*Jonathan Palmer*

TESLA

Market cap ($b)	1146
Top executive	Elon Musk
Legal name	Tesla Inc.
2025 estimated revenue change	+17%
2025 estimated sales ($b)	117

The electric-vehicle maker plans to introduce a slew of fresh models in 2025, which will help expand its reach to new buyers, boost profits and showcase advancements in its artificial intelligence and self-driving tech. Early in the year, Tesla is due to roll out a lower-priced car, followed by a major refresh for its bestselling Model Y. ––*Steve Man*

THAI BEVERAGE

Market cap ($b)	11
Top executive	Thapana Sirivadhanabhakdi
Legal name	Thai Beverage Pcl
2025 estimated revenue change	-10%
2025 estimated sales ($b)	8.7

The maker of Chang beer and a slew of whiskey and rum brands is in the midst of a restructuring that will increase its nonalcoholic-beverage offerings and offload a stake in a property company. These actions should boost earnings growth in 2025 more than the market expects, and a planned initial public offering of its beer operations should provide more visibility for this key business. ––*Lisa Lee*

TOKYO ELECTRIC POWER

Market cap ($b)	74
Top executive	Yoshimitsu Kobayashi
Legal name	Tokyo Electric Power Co. Holdings
2025 estimated revenue change	0%
2025 estimated sales ($b)	46

The electric utility's profit margin is poised to widen as the Japanese government encourages nuclear energy—a big shift from the hiatus following the partial meltdown of the Fukushima facility in 2011. Nuclear energy is Japan's cheapest source of power, but almost half of Tepco's capacity has been out of commission. Restarting plants should boost earnings expectations. ––*Kelvin Ng*

UPS

Market cap ($b)	114
Top executive	Carol Tomé
Legal name	United Parcel Service Inc.
2025 estimated revenue change	+4%
2025 estimated sales ($b)	95

The shipping company is poised for profit growth in the mid- to high teens in 2025 and beyond, thanks to productivity and restructuring programs. UPS divested its freight brokerage unit in September, and targeted price increases are fattening margins as freight demand improves. The ramp-up of its air cargo contract with the US Postal Service, which began in 2024, will also add to UPS's core parcel business. ––*Lee Klaskow*

■ ILLUSTRATIONS BY BRYSON LEE

VALE

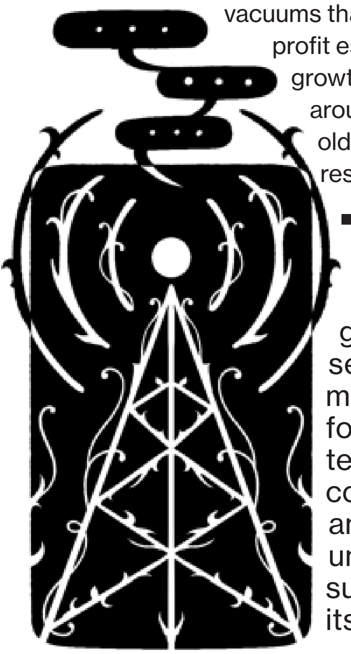
Market cap ($b)	44
Top executive	**Gustavo Pimenta**
Legal name	**Vale SA**
2025 estimated revenue change	**+2%**
2025 estimated sales ($b)	**38**

There are three reasons investors can expect a bright 2025 for the world's No. 2 iron ore producer. The most important: China's recently announced economic stimulus plans. A global recovery in steel mill margins should also give Vale's higher-grade iron ore products a boost, and the company expects two new iron ore projects to be commissioned by mid-2025. ––*Grant Spoore*

VAT GROUP

Market cap ($b)	12
Top executive	**Urs Gantner**
Legal name	**VAT Group AG**
2025 estimated revenue change	**+27%**
2025 estimated sales ($b)	**1.4**

The Swiss equipment maker's high-performance valves are used to create vacuums that are critical in chip manufacturing. Consensus profit estimates look too low given accelerated spending growth in leading-edge semiconductor facilities around the world along with China's investment in older-generation chips as it contends with US trade restrictions. ––*Omid Vaziri*



VODACOM

Market cap ($b)	12
Top executive	**Shameel Joosub**
Legal name	**Vodacom Group Ltd.**
2025 estimated revenue change	**+6%**
2025 estimated sales ($b)	**8.7**

As South Africa's political turmoil eases and the new coalition government hits its stride, economic sentiment is improving. That makes current 2025 profit estimates for the country's largest telecommunications operator look conservative. Vodacom's revenue growth and profit margins should improve as unemployment falls and electric outages subside, boosting demand for its services. ––*John Davies*

WASTE MANAGEMENT

Market cap ($b)	90
Top executive	**James Fish Jr.**
Legal name	**Waste Management Holdings Inc.**
2025 estimated revenue change	**+11%**
2025 estimated sales ($b)	**24**

The top US garbage hauler's $7 billion acquisition of Stericycle in 2024 looks challenging for the year ahead, given the medical-waste disposal company's history of earnings disappointments and restructurings. And with little overlap with WM's core trash and landfill business, cost synergies will be limited. The purchase price will push WM's debt burden well above historical norms, adding balance sheet risks. ––*Scott Levine*

WILMAR

Market cap ($b)	15
Top executive	**Kuok Khoon Hong**
Legal name	**Wilmar International Ltd.**
2025 estimated revenue change	**+4%**
2025 estimated sales ($b)	**71**

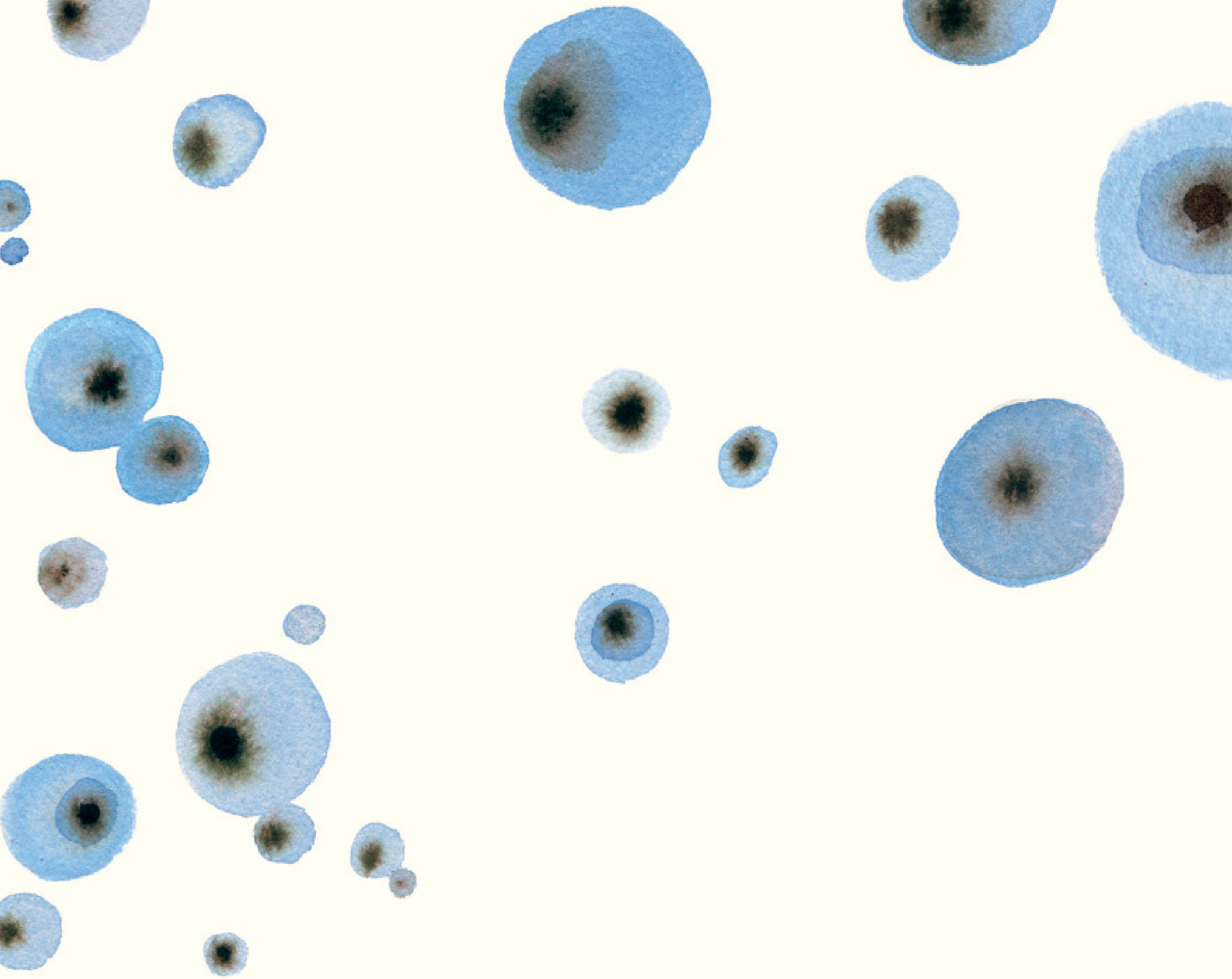
As China's population ages, consumption of cooking oil there is headed for a fall, presenting a long-term growth challenge to the Singapore-based palm oil producer. People tend to cook with less oil after age 40, now the median age in the world's second-most populous country, where Wilmar has a 38% market share of branded cooking oil and gets about half its sales. ––*Alvin Tai*

WORKDAY

Market cap ($b)	67
Top executive	**Carl Eschenbach**
Legal name	**Workday Inc.**
2025 estimated revenue change	**+13%**
2025 estimated sales ($b)	**9.4**

The software provider could see a notable boost in the number of new contracts in the second half of 2025, driven by midsize businesses buoyed by lower interest rates. A revival in bookings for Workday's offerings should help it bring revenue growth back up to the high teens, allaying concerns that emerged among investors over the past two years. ––*Anurag Rana*

A single cell.



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or human costs that
cannot be measured.

The Egg

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The human egg is a precious resource, exchanged in markets open, gray or black. To tell its story, we follow a teenage girl in India, lured into selling her eggs; a model in Argentina whose genetic makeup is prized; a mother in Greece, told by police that her eggs were stolen; and two "egg girls" from Taiwan who have put themselves at risk to earn money in the US.

By Natalie Obiko Pearson, Jessica Brice, Susan Berfield, Vernon Silver,
Kanoko Matsuyama, Cindy Wang, Sinduja Rangarajan and Fani Nikiforaki
Illustrations by Magali Cazo

1. DON'T TELL YOUR MOTHER

THE TEEN

She wakes early, then waits, quietly, for her mother to leave for work. The nurse in the gleaming glass building in Varanasi, India, had told her to arrive by 7 a.m., so she doesn't have much time. Her fingers working quickly, she drapes a sari across her adolescent frame, making her look older and curvier than the salwar kameez tunics she usually prefers.

She's tired of these trips, but this one, on Oct. 8, 2023, will be her last. For 10 days she's been sneaking to an upscale fertility clinic to receive injections that trigger her ovaries into mimicking the monthly reproductive cycle that typically readies a single egg for fertilization. In her case, the powerful synthetic hormones were meant to deliver not just one egg, but a cache to be sold. In the lucrative global market for human ova, that stash is more valuable than anything among her family's modest possessions.

Today the cache is ready for retrieval. Her ovaries are teeming with follicles, each swelled to more than half an inch and ready to release a mature egg.

By law, egg donors in India must be at least 23.

But her only piece of identification, a school record from the state government, shows her as 13.

The truth is, she doesn't know her age, and neither does her mother. This isn't particularly unusual at the lower rungs of Indian society, where millions of births go unregistered. The girl is in seventh grade.

To get around the law, she must present as a woman. For this, she has help. Her grandmother's neighbor, a woman named Seema, is a fixer of sorts, an agent, according to police records. It was Seema, the girl will say, who put all this in motion. Seema persuaded her to sell her eggs. Seema had her pose for a photo for a fake ID. Seema drilled her on the story she had to tell: wedded, with two children. On the raft of forms for the clinic, Seema had her own husband sign off as the girl's spouse.

The girl trusted Seema, who'd told her she could earn as much as 15,000 rupees ($177). For a gift of life it's a paltry sum, but for the girl it would be enough to buy what she longed for—a smartphone. So she heeded Seema's advice: Don't tell anyone, not even your mother.

The girl comes from a family of sweepers in Varanasi, relegated by caste to cleaning up the detritus of Hinduism's holiest city. Her mother is the family's pillar, working long hours at a doctor's office to raise her three daughters. The teen is the middle daughter, the light of the family, chatty with a sharp wit. She likes to put on makeup and borrow her sister's phone to post videos to Instagram and Snapchat, imagining a future beyond her home in a cramped settlement perched precariously along a railway track.

The clinic belongs to another world, one with money and the hope it can buy. "We will make your dream of building a family come true," a billboard on the building says. Inside, for a shot at getting pregnant, dozens of couples sit ready to part with 10, 20 times what donors get paid for their eggs.

As the girl arrives on this morning, Seema waits with another woman, named Anita, who hands her a fake government ID showing her as 24, according to police records. The women press a vermilion bindi onto the teen's forehead, clasp a mangalsutra wedding necklace around her neck and adjust her sari. ▶

The teen in Varanasi was lured into selling her eggs for $180

APARNA JAYAKUMAR/BLOOMBERG

◀ As a finishing touch, they put a toddler in her arms. Seema ushers the girl into the clinic.

The girl is scared, and no matter what the paperwork says, there are signs that something's amiss. There's the adolescent plump to her cheeks. She holds one child and claims to have another at home, but the ultrasounds she's undergone could raise the question of whether she has any at all. Then there's Seema, who keeps talking over her, prompting the doctor to order the older woman out of the counseling room. The doctor wants to talk to the girl alone. Her heartbeat races. The doctor asks: Why is she selling her eggs? How long has she been married? How many children does she have? The toddler squirms in her lap. Fighting waves of panic, she clings to the story.

She needn't have worried. Soon she's whisked into an operating room and put under anesthesia. When she comes to, only a nurse is there. The girl asks if it's OK to leave. The nurse says yes.

Outside, Seema and Anita are waiting. Anita withdraws 15,000 rupees from a nearby ATM, Seema takes a cut, and then the girl goes shopping, buying a cheap Oppo smartphone with the remaining 11,600 rupees.

Her case could have ended there, passing unnoticed like tens of thousands of egg extractions in India every year. But in Varanasi's less fortunate neighborhoods, where there's little space between one small concrete hut and the next and conversations drift through window openings with no glass, secrets don't stay secret for long.

Competition is fierce among agents in Varanasi, and days after the retrieval, an argument erupts in the street between Seema and a rival. They bicker loudly over who had first rights to the girl and who was entitled to the 3,400-rupee commission. A crowd gathers, and in this crowd, among those listening, is a member of the girl's family.

2. AN EXPLOSION OF STARS

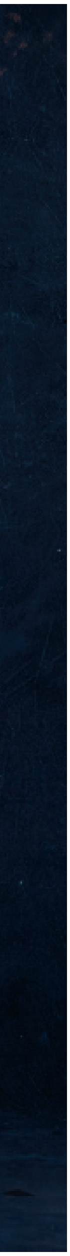
THE MODEL

On a chilly Thursday in June, Karen Petz takes a black Uber to a fertility clinic along a busy street in Buenos Aires. She wears an olive-green granny-knit sweater cropped short on her long torso. Her belly is swollen. "It's getting uncomfortable to walk," she says. "My ovaries are pushing on my organs." She presses four fingers into her lower abdomen and pushes back.

Karen is tall. "In the US, I think you would say 6 feet," she says. "A hundred and eighty-three centimeters." Her eyes are a watery green, her hair long and blond. Like many tall women, she hated this trait right up to the point it turned into an asset. Years back, when she was modeling clothes in Chile, her agency told clients her look was "aspirational"–as in, she is what other women aspire to.

The sun isn't fully up when Karen walks into the WeFIV clinic. At 31 she'd retired as an egg donor. But a couple in Mexico had said they were desperate for a donor just like her, and so Karen agreed to provide her eggs one more time when her US-based agency asked her to make an exception. In an industry void of broad regulation, one thing doctors generally

Karen Petz, in Buenos Aires, was paid $35,000 for a donation in June



agree on is that no one should donate more than six times. Today will be Karen's seventh.

She checks in and is escorted into an elevator, up three floors to a private patient suite. She changes into a white waffle robe and waits for a nurse to come claim her with a wheelchair. Then it's up another floor to answer a checklist of questions: Have you eaten anything this morning? Have you ever had a bad reaction to anesthesia? Are you wearing contact lenses?

It's a routine that five to six women take part in daily, always in the morning, six days a week. Most are having their eggs harvested for their own future in vitro fertilization treatments, but a growing number are here to help fill the clinic's egg bank. With its large European population, weak currency and liberal laws around reproductive issues, Argentina has become an important producer of eggs, for both the domestic market and export. Fees for donors like Karen—college-educated, good-looking, athletic, charismatic—range from $2,000 to…

"Well, the sky's the limit, really," says Natalia Basile, WeFIV's co-owner and chief embryologist. "The most we ever had a donor ask for was $75,000."

Forty-five minutes after arriving, Karen is rolled into WeFIV's surgical suite. An operating table with stirrups sits off center. A 35-centimeter needle waits atop a steel cart. On the ceiling, an explosion of stars is projected from a light machine tucked in a corner. It's the last thing she sees before the anesthesia kicks in.

It's bustling but quiet as two doctors and three nurses play parts performed so often it's now second nature. On the wall, a screen displays the transvaginal ultrasound of Karen's right ovary. After a two-week regimen of hormones, it's swollen four times in size. Beneath the projection of stars, the grainy image could be a moonscape pocked with a dozen dark craters.

Each crater is a follicle. WeFIV's chief physician guides the needle through the recesses of Karen's body, piercing the vaginal wall to reach the ovary. One by one, the follicles are drained of their liquid. Karen snores. The craters disappear from the screen. Karen squirms, and a nurse adjusts her back into position. The fluid is deposited into vials.

There's a nurse whose only job during the procedure is to spirit those vials away to a lab connected to the operating room. At either end of the lab, an embryologist peers through a microscope and sorts eggs from liquid that's the color of watered-down blood. The courier nurse delivers a vial to the first station, returns to the operating room to retrieve another, then drops it off at the second station. It goes on like this for 25 minutes. In and out. One and two. Karen's procedure ends. The final egg count is still being tallied when another woman takes her place on the operating table.

"It's a lot," Basile says in the lab. "We knew it was going to be. You can tell on the ultrasound, but we also knew, based on this patient's history, what to expect."

Karen is a super-producer, someone whose body reacts so strongly to the hormones that it churns out far more than the typical 15 to 20 eggs.

The first station's numbers are in: 26 eggs.

"How many you got over there, Santi?" Basile shouts across the lab.

Embryologist Santiago Giordana, at the second station, checks a petri dish with a cluster of just-visible gray specks in the center. "Seventeen," he yells back.

"And that's why Karen is so popular," Basile says.

For the next hour or two, these 43 eggs will rest in a culture medium, then get a quick rinse in an enzyme solution that will eat away their protective cellular covering. Sixteen won't be mature enough and will be discarded. The remainder will be frozen in a process known as vitrification and stored for several more weeks, until they're ready for an intercontinental trip spanning almost 8,000 miles. A *Bloomberg Businessweek* reporter will follow them, from operating room to journey's end.

By the time the 27 eggs reach their destination, they will have generated revenue for doctors, agents, airlines, lawyers, counselors, couriers, insurers and drug companies. Karen is paid $35,000.

3. TRACKING CODES

THE MOTHER

For Maria, it's already a bad sign that two police officers have summoned her to their station. When they say the woman with them is a psychologist, she braces for the worst.

As the four take seats in February, all Maria knows is that the matter relates to the birth of her 3-year-old child—the happy result of in vitro fertilization.

("Maria" is a pseudonym. She shared her story but asked that we withhold her name.)

Four years earlier, Maria had gone to a fertility clinic near her home on the Greek island of Crete to have eggs retrieved. She wasn't donating her eggs. As a smoker in her late 30s, she'd have been a poor candidate, if that had been her intention. She just wanted to have a child. But now these police officers—members of a national organized-crime unit—are saying she'd been lied to.

The clinic staff had told her they'd harvested a half-dozen eggs. But the real number was twice that, the police tell her. The other eggs had been used to create embryos for another woman. This news devastates Maria. To her it means she might be the mother of another child.

The psychologist is here to help her process the news. For Maria, questions swirl. How many other children might have been born of her eggs? One? Three? None? And how was this allowed to happen?

The police are also summoning other women, delivering similar news. Most, like Maria, live in and around Chania, a seaside tourist town that had become an unlikely hub of the global fertility industry. The Mediterranean Fertility Institute, or MFI, was a magnet for aspiring parents from nations with restrictive assisted reproduction laws. To make babies, the clinic needed eggs.

The police, in these visits, want to nail down a key detail from women whose names have shown up in seized records: Did they ever give permission to surrender some of their eggs?

The officers ask Maria what happened at the clinic in early 2020. Maria reconstructs the day her eggs were retrieved, then asks questions of her own. ▶

■ PHOTOGRAPH BY IRINA WERNING FOR BLOOMBERG BUSINESSWEEK

◀ Yes, the police tell her, clinic records show it actually had been her eggs and her husband's sperm that produced her child. That part had gone normally. Unfortunately, the police tell her, records indicate her remaining eggs became a "donation" to another woman—and no, they don't know if the other woman had any babies using Maria's eggs.

Who is this other woman? Maria is led to believe the police know but can't say, partly because of a Greek privacy law surrounding egg and sperm donation. But while the police don't give a name, they do offer something else. The clinic had assigned tracking codes to the women passing through. Egg donors received six-digit codes, IVF patients four-digit codes. Maria already had her own code. Before she leaves the station, police give her another, the code for the woman who got her eggs.

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4. EGGS: 330. EARNINGS: $160,000

THE EGG GIRLS

She was a young woman in Taiwan—it would have been 2018—a graduate student on her own, an extroverted, intuitive type on the Myers-Briggs personality test, a feminist. She liked being independent, but she felt poor. She wanted a job with a high "CP value," or cost-performance, which is what young women in Taiwan sometimes say when they consider taking a calculated

The former site of the Mediterranean Fertility Institute, where Maria's eggs were stolen, according to a police investigation

Amber, who lives in Taiwan, donated eggs in the US 11 times, earning as much as $25,000 at a time

■ CRETE: HILARY SWIFT/BLOOMBERG. AMBER: PHOTOGRAPH BY AN RONG XU FOR BLOOMBERG BUSINESSWEEK

chance to become happier, better off. She searched online for a quick way to make money. The first possibility: nightclub escort. The second: egg donor. Ten thousand dollars for one cycle in the US. “Oh,” she thought. “It’s quite big money.”

Amber–the name she’s chosen for this story–is now 30 years old. She’s a translator and a competitive vogue dancer and an “egg girl,” the term Taiwanese use to describe the hundreds, maybe thousands, of women who sell their eggs in the US. The buyers usually come from China, because it’s illegal to make these kinds of arrangements there. In the middle are recruiters and agents, doctors and nurses. Amber is fine with calling it a marketplace. She’s gone through 11 cycles in the US, sold about 330 eggs, earned $160,000, worked with 4 agents, 4 clinics, 2 egg banks and at least 9 Chinese families.

She’s in a cafe in Diamond Bar, California, in May, five days after her latest retrieval, eating noodles and wearing black pants, a crop top, frayed jean jacket, orange lipstick. That is, she looks comfortable. She says she feels good. The daily shots and clinic visits, the enlarged ovaries, swollen feet, sleepiness and anxiety–they’re memories. Thirty-three eggs of hers are in the lab, $16,000 deposited in her bank account. Tonight she’s clubbing with friends.

Egg donation is legal in Taiwan, but women are allowed to do so only once if a baby is born as a result, and they can be paid only about $3,000. Easy decision for Amber in 2018: “If I’m going to do the same thing, why don’t I choose the place where the price is higher?” But everything else that first time made her nervous. She didn’t know any other egg girls. She hadn’t ever traveled to the US, and now she’d have to lie to pass through customs. She had to trust her agent, a Chinese American woman she’d never met in person whose last name she didn’t know. Would-be parents tend to want the eggs of someone who’s relatively tall and slim and well-educated, someone who might resemble the mother, maybe plays the violin or tennis. The specifications can be exacting. Amber submitted photos that made her look friendly, videos that made her look cute. She took genetic tests and blood and urine tests, had physical and gynecological exams, a psychological evaluation. She did all this without telling her parents. They wouldn’t have approved.

When Amber had to take a car alone from the Los Angeles airport; when she had to pinch a fold of skin over her left ovary, take a deep breath and inject the stimulation medication herself; when she felt bloated and ugly; when she thought of giving up, she told herself: “I’m here for the money. I can do this thing.” And when the doctor said he’d extracted 34 eggs, Amber knew she’d do this thing again. A successful retrieval meant she could ask for more money next time: “My eggs are like a treasure.”

Over the next six years, Amber learned about the trade–and the trade-offs. Once someone said to her: “The thing you do is not about donation. It’s a business. Don’t say it so pretty.” Amber replied: “‘Yes, I’m doing a business. And so what, right?’ Because I think about the injection, the egg retrieval, so many inconveniences, so much is uncomfortable, and also the pain. Right?”

Amber has learned: Anyone can be an agent. There’s no exam to pass, no medical experience or legal training required. Many agents are former donors. In the US they can operate in the open, even if some Chinese American agents prefer not to. In Taiwan agents exist in a liminal space, prohibited from brokering the sale of eggs but seemingly able to match a young woman with would-be parents, collect a fee and never be named in the contract between them.

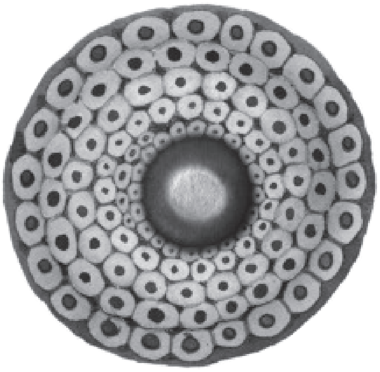
Also: The US industry guideline limiting donors to six cycles is rarely enforced. There’s no way for a clinic to track retrievals elsewhere. If a nurse asks how many times Amber has donated, she always says four. Then the nurse might remind her of the recommendation. “After that, because the clinic also wants to make money, they won’t purposely raise this question,” she says.

She’s learned she has power. That’s why she’s worked with different agents. If one can’t find her a match when she’s available at the fee she desires, she turns to another. “Where the money is, that’s where I am,” Amber says, laughing. Her highest fee: $25,000. The most eggs extracted: 52. Her best investment: crypto, especially Ether. Her worst experience: donation No. 5, 44 eggs, $15,000. She was in so much pain after the retrieval that she had trouble lying down to sleep. The danger of that kind of pain, or worse, goes up with the number of eggs harvested. More than 15 eggs, and the risk of getting what’s called ovarian ▶

◀ hyperstimulation syndrome increases. More than 30, and the risk increases even more. Amber doesn't worry about that.

Every egg girl coming to the US must contend with another potential obstacle–Customs and Border Protection. Amber has learned how to deal with that, too. The young women arrive on travel documents that don't allow them to work or earn money. Immigration officers can turn anyone away if anything seems suspicious. The women's agents coach them on how to answer likely questions. They tell the women to book the airplane tickets themselves, delete sensitive emails, remove the WeChat app altogether, wear plain clothes, skip makeup. They should have a vacation itinerary, sometimes even a hotel reservation. When asked for a local contact, they shouldn't write the clinic's address, as did one donor who was turned back. But still they might be taken to "the room" for questioning. "Customs may say: 'Don't lie to me anymore. I know you are here to work to make money.'" And then, Amber says, some donors just tell them everything.

Not Amber. She's been taken to the room twice. The second time, an immigration officer scrolled through her phone for half an hour, reviewing two years' worth of bank statements. She told him she was there to visit friends she danced and competed with. She showed him videos of her vogueing. He let her go.



5. $35 BILLION AND GROWING

Every 15 seconds or so, a batch of eggs is extracted from a woman somewhere on the planet.

Most IVF treatments involve women using their own eggs. In at least 6% of cases the eggs come from donors–the fertility industry's term–who agree to have their eggs removed, often in exchange for money. The donors are recruited into a $35 billion-and-growing global market for assisted reproduction. This market comprises would-be parents, agents, doctors and clinics–many of the latter backed by Wall Street and private equity.

Globally more than 120,000 embryos were created with donated eggs in 2019, almost double the number in 2011, according to the International Committee for Monitoring Assisted Reproductive Technologies. The real number is certainly much higher: Not all countries reliably monitor this, and the numbers don't include India. (An analysis of data from Bharat Serums and Vaccines Ltd., one of India's largest fertility drugmakers, shows an estimated 95,000 rounds of IVF using donor eggs occurred in the country just in 2023.) The demand for eggs extracted from younger women is likely to increase as more older women try to have children. As women age, the number and quality of their eggs decline.

The egg trade, which operates with minimal regulation across borders, thrives in open markets, gray markets and black markets. When the rules or circumstances change in one country–foreigners are banned from using surrogates in India; war shuts down fertility tourism in Ukraine; Chinese couples are permitted more than one child but forbidden to buy other women's eggs–the contours of the business change, too. Those who want children seek help in Greece instead of India, Argentina instead of Ukraine, the US, not China.

Egg donors have few advocates and few laws to protect their health or prevent their exploitation. In the US, the Food and Drug Administration requires that donors undergo a physical exam, including tests for infectious diseases, and provide their medical history. Beyond that, clinics are expected to comply with guidelines set by a fertility industry trade group, the American Society for Reproductive Medicine. The guidelines recommend, among other things, that donors receive mental health counseling and get their own legal review of all contracts. The ASRM also suggests that donors undergo only six retrievals. That's meant to reduce the chance of complications.

The short-term risks of hormonal stimulation range from discomfort to, in rare cases, death. The long-term risks of repeated egg donation are unknown. That's not an accident, says Robert Klitzman, a professor and director of the Master of Science in Bioethics program at Columbia University. "They are making millions off women who are making thousands," he says. "If they did the research, they might find out there are long-term harms that may decrease the business and the amount of money they can earn."

6. YOU SHOULD DO IT

THE MODEL

An old friend of Karen's, also a model, sold her on the idea. Karen was living in Santiago and working as a research translator. Kenia Iost, who'd recently moved to Mexico, was in town for a wedding when they ran into each other.

I just got back from Los Angeles, Kenia told Karen, explaining how she'd been paid $6,000 for her eggs. You should do it.

Social media is full of ads offering compensation for eggs. Influencers dance in front of clinics on TikTok or hype egg donation on Instagram between posts about lip filler and breast implants. But for donors who command the highest prices, word of mouth is everything. Kenia herself had been scouted by a fitness influencer who'd undergone the procedure and got a referral fee for every recruit.

In January 2019, when Karen was 26, she flew to LA to donate her eggs for the first time. She'd be paid the same as Kenia. She went to one of the 11 clinics run by Huntington Reproductive Center, or HRC, among the biggest fertility chains in the US. A nurse-turned-scout had arranged everything, but on the ride from the airport, Karen got a text saying the intended parent had backed out. She had no idea what that meant. Would she get paid? Would her hotel reservation be canceled? Hours later another text arrived. The retrieval was back on; a couple in China would buy the eggs instead.

"It all felt very sloppy," Karen recalls. "Everything about that situation was wrong. I know that now, but at the time I had no idea about anything." (HRC didn't respond to requests for comment for this story.)

When the retrieval at HRC yielded 45 eggs, word somehow got out. Within a week, a surrogacy and egg donation agency named Growing Generations reached out, offering at least $10,000 per donation if Karen signed with it.

Growing Generations, based in LA, asked Karen for childhood photos and her family medical history. The agency wanted to know her professional aspirations, her philosophy on life, how she liked to spend her day. Karen wrote almost a dozen pages about everything from her work as a model, to her business studies, to her German heritage, to the marathon she'd recently run. "I really poured my heart into the questionnaire," she says. "The idea that people choose me not only because of my looks but because of my personality—it really validates me."

Karen's profile went live in February 2019. Within a couple of days, Growing Generations got a call. Someone was interested.

7. A SUSPICIOUS SITUATION

THE TEEN

The family member who overheard the agents' argument tells another relative, who in turn tells another relative. Word reaches the teenage girl's mother. She discovers the phone her daughter has been hiding and confronts her. The girl comes clean, the truth spilling out.

On Oct. 17, 2023, the girl's mother reports what's happened to the police, triggering an investigation. Police soon identify the clinic in question: a branch of Nova IVF Fertility, one of India's largest fertility chains, which has been backed by some of America's most powerful financiers.

Nova is owned by Asia Healthcare Holdings, which in turn is controlled by the American private equity giant TPG Inc. Nova's rise was powered by Goldman Sachs Group Inc. and venture capital giant New Enterprise Associates, or NEA—part of a flood of investment into India as it emerged as one of the world's largest, fastest-growing and least-regulated markets for IVF and egg donations.

Three days after the girl's mother notifies authorities, police and inspectors working for the state's chief medical officer arrive at the Nova clinic. Reading the clinic's file for the girl, they're disturbed by what they see.

The girl's insurance documents carried the details of a different patient. She'd been screened at a lab not registered with the state. One form said she had one child; another said she had two. She'd signed an affidavit written in English, but she spoke only Hindi. "This is also a suspicious situation," the confidential inspection report, reviewed by *Businessweek*, noted. ▶

◀ The inspectors also question how two doctors at the clinic were unable to determine whether she'd ever given birth. (Cesarean sections leave scars, and vaginal deliveries typically leave signs, such as scar tissue.) "This situation raises doubts on the quality of the entire process," the report said. The retrieval of eggs from a minor wouldn't have been possible without "the active role" of employees and doctors at Nova, according to the report.

The following month, police arrest five people: Seema and Anita and three male accomplices. A press release trumpets the bust of a gang that lured poor women and girls into selling their eggs. It causes barely a blip of interest—the country's biggest English-language daily publishes a brief on page 12—before disappearing from the news cycle. Police refuse to identify the clinic that took a child's eggs.

When making the arrests, police confiscate phones from three of the suspects. At the all-women police station heading the investigation, a sub-inspector opens their WhatsApp messages and begins scrolling.

8. AN ASSEMBLY LINE OF WOMEN

THE MOTHER

It was early 2020, the first days of Covid-19, when Maria made the quick drive across Chania to have her eggs retrieved. This was her third IVF attempt. The first two had failed. But Maria and her husband felt lucky that right in their town they had a clinic, operating since 1992, that attracted prospective parents from all over.

The Mediterranean Fertility Institute's founder, a Greek gynecologist, had fashioned himself into a fertility personality—presenting at conferences and cultivating a following of families who posted baby pictures on Facebook. In more recent years he'd been joined by a Greek embryologist who, as scientific director, helped expand the operation. "They were taking on a lot of cases. A ton," says Sam Everingham, global director of an organization in Australia that advises clients on surrogacy and egg donation.

Everingham had seen, personally and professionally, a shift in the global fertility industry. His family's own quest for kids had led him to India, where his two daughters were born in 2011 with the help of two surrogates and a single egg donor—or so he was told. At the time, India was experiencing a "gold rush," he says, as clinics sprouted up, providing inexpensive fertility services.

But in 2015, India banned surrogacy for foreigners. So did Thailand. Cambodia soon followed suit.

The year before India closed its market, Greece opened its up, allowing nonresidents to arrange pregnancies using local surrogates. Positioning itself as a reproductive tourism destination, Greece promoted its beaches and relatively inexpensive IVF treatments. By 2017, more would-be parents from other countries began using Greek clinics. MFI was "by far the most popular," Everingham says. Clients came to Chania not just from Australia, but from India, Italy and the US, too.

When Maria arrived that day for her retrieval, Covid restrictions limited who could be in the waiting room. A drawing of a woman cradling a baby hung on a wall. At the staff's instruction, Maria had already undergone weeks of tests and appointments, some of which puzzled her, including a genetic screening for cystic fibrosis. She was going to use her eggs to attempt a pregnancy, no matter what the lab results were, so why bother? Nevertheless, she was ready for what was now a familiar retrieval procedure.

First came the consent form, which she says she recalls vividly. It included a box to tick if she wanted to share any excess embryos, which she didn't mark. The form had nothing on it about eggs, she says. (A woman employed by the clinic at the time as a junior embryologist corroborated Maria's description of MFI's release forms.)

Maria awoke to be told the retrieval was a success. Her eggs would be fertilized and the embryos frozen, to be implanted in a few weeks. On a spring day she returned to the clinic and joined an assembly line of women. If she ever unknowingly crossed paths with the woman who got her eggs, there's a chance this was the moment.

The IVF patients cycled through in groups of about a half-dozen each. They were implanted, one after another, in a private surgery room, then sent to rest for 15 to 20 minutes in an

> "Everyone wants to make sure that the donors won't love

adjacent room lined with beds. It was so crowded that when Maria emerged from her procedure there was no bed to spare. So she sat in a chair next to a row of other women, hoping the embryo would take hold.

As soon as her group was done, another came in.

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9. TRIGGER SHOT

On May 21—four days before Amber's egg retrieval, about 70 miles to the west—Brandy gives herself the first of at least 20 injections. Two medications stimulate her ovaries to allow dozens of eggs to grow; a third prevents her ovaries from releasing the eggs until they're mature enough to be extracted. Brandy, who's a nurse in Taiwan, has been through this five times before. She's 30 years old, confident, almost nonchalant. She asks us to use "Brandy" as her pseudonym. When we ask if she might record a few thoughts before the shots or after, she says: "Why? There's nothing to tell."

She's staying in a room in a home owned by a Chinese American family in a Chinese American neighborhood in Thousand Oaks, California. She shares the refrigerator, where she keeps her medication next to her bok choy and milk. The family doesn't ask any questions.

Brandy gives herself the shots sitting in front of a glass desk covered with her makeup, hair conditioner and vitamins. Or she gives herself the shots while standing. No big deal. The first evening, and each evening for about a week, she gives herself two shots. Then, for several days, she adds a third. She mixes 1cc of salt solution with 75 units of Menopur—a medication derived from the urine of postmenopausal women—finds a spot above the right ovary, pinches the skin. She takes a pen needle with 375 units of Follistim and injects. Same with a 0.5-milliliter dose of Ganirelix. Three minutes, she's done. She's made a video of it for her agent, as most Taiwanese egg girls must. Proof that they've completed the day's task. Then, dinner.

Brandy loves to eat, but when she's working—her word—she's careful. Lots of protein and fruit and vegetables, milk and water. Starting a month before the injections, she takes calcium, vitamin D, and CoQ10, which she says helps reduce inflammation in her ovaries and maybe prevents the problems that can come from hyperstimulation. Five cycles and she's never had any lingering concerns. "Every time, more than 30 eggs," she says. "The doctors and nurses are very happy. It makes me popular."

This is her third cycle at the HRC clinic in Pasadena. HRC opened in Southern California in 1988, seven years after the first baby was born in the US using in vitro fertilization. Its doctors have long been early adopters, quick to seize opportunities. They helped women over 50 become pregnant when few others would. They've treated more than one Bravo reality-TV star. Now, HRC Fertility Management, which oversees the clinics, is owned by one of the biggest Chinese fertility companies, Jinxin Fertility Group, which trades on the Hong Kong Stock Exchange. About one-third of the cycles HRC performs are for Chinese clients.

Brandy Ubers to the clinic several mornings so a nurse can adjust the doses of her medications if her eggs are growing too slowly or her body is reacting badly. The instructions arrive afterward by email in Mandarin.

The discomfort usually begins during the second week of injections. By then Brandy is bruised, bloated, tired. She's relieved when she's told to give herself a trigger shot of the hormone HCG, or human chorionic gonadotropin, on Thursday, May 30, at 10 p.m. exactly, and come in the next morning for a last checkup. Her cycle is almost complete; her retrieval will be about 36 hours later. ▶

their eggs
too much,

that we
understand
the eggs belong
to the parents now"

◀ The clinic is on the ninth floor of an office building, its waiting area lit by chandeliers. We're supposed to meet Brandy that Friday morning, but she doesn't show. When we reach her later, she tells us she's cranky and just wants to sleep. But she'll meet us after her retrieval, which is scheduled for 9 a.m. the following day.

On Saturday at around 10:30 a.m., she emerges from the elevator in a wheelchair, pushed by a nurse. She's wearing a light, white minidress and smiling. She just made $18,000. That's almost as much as her annual salary in Taiwan. She produced 29 eggs. She says she's already feeling better—she's hungry for dim sum. At the restaurant, over a platter of barbecued meat, she says she doesn't think much about the people who are buying her eggs or the kids they might one day have. "I could be like Confucius with his 72 students," she says. "But everyone wants to make sure that the donors won't love their eggs too much, that we understand the eggs belong to the parents now."

Later, Brandy will report back to her agents. One, in Taipei, is a former model and nightclub promoter who used to recruit young women to work in Singaporean bars. Since 2015 he's been recruiting them to be egg girls instead and sending them to his partner outside Los Angeles. She runs an agency that was among the first to connect aspiring parents in China with American clinics. In China, fertility treatments are available only for married heterosexual couples, and surrogacy and paid egg donation are forbidden. The only way a woman can use someone else's eggs is if that someone has gone through IVF herself and shares her unused eggs. That's rare. For Brandy's eggs, the would-be parents will pay her agents $10,000.

Brandy is already considering another retrieval, with a different agency. She thinks putting herself on the market again might allow her to earn more. The next time, she's hoping for $20,000.

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10. 300 BUCKETS OF URINE

Every morning, starting around 6, older women ride their electric tricycles around the village of He, in Hebei province in northeast China. They stop briefly at the homes of other older women, where waiting at front doors are small buckets of fresh urine. Not just any urine—it must be urine from women who've gone through menopause, because they can produce elevated levels of two important hormones. The collectors check the quality of the urine with a paper test strip: If the strip remains yellow, they'll pour the urine into jugs. Someone then takes it to be processed by Weichen Biological Products, a privately owned company about an hour's drive away. Weichen says it extracts hormones from tons of urine every day for drugmakers. Eventually those hormones will be the most essential ingredient in some of the most common fertility drugs used to stimulate ovulation. The hormones can be synthesized—demand for the drugs made that a necessity years ago. But the drugs' development depended on the urine of postmenopausal women, and in some places their manufacture still does.

Five hours, 300 buckets of urine: a good morning for the collectors. Most don't seem to do this for the money. The collectors—who also give their own urine—get paid minimally, but they aren't complaining. "It's something that would otherwise be wasted, so if it's useful, why not collect it and use it," one of the women says. They don't know the names of the drugs created from it, fertility medicine of some kind. The contributors receive a token of appreciation, some salt, a bag of laundry detergent. "Turn trash into treasure," goes a line on the packaging. And: "Let a mom help a future mom."

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11. "LIKE SCROLLING ON TINDER" THE MODEL

Alice Kempton was 32 and newly married when she and her husband, Paul, asked a cousin for a favor. Alice had been born without ovaries. If she wanted kids—and she did—she'd need an egg donor. But in her native Australia, donors must be someone you have an established relationship with and must be motivated only by altruism. I'm ready to help, the cousin said.

She wasn't the ideal candidate. Donors over 35 are considered geriatric, and the cousin was 36. A woman has up to 2 million eggs at birth, but by her mid- to late 30s, fewer than 3% remain.

In 2017 a fertility specialist in Melbourne retrieved 20 eggs from the cousin. Fewer than half were turned into embryos using Paul's sperm. Over 18 months, Alice went through seven IVF cycles. Two didn't take, but five did. They all ended in miscarriage. "It was full-on for a while there—bang, bang, bang," Alice recalls. Her longest pregnancy made it to 14 weeks.

When they asked the cousin to donate a second time, she declined. I can't go through that again, she told them.

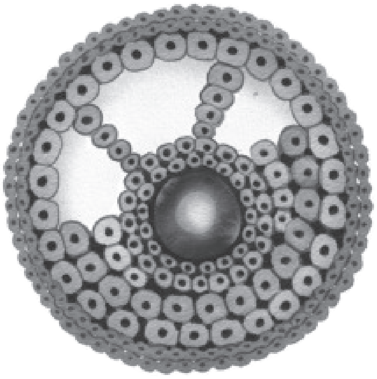
For many Australians, the journey would have ended there. Paul and Alice Kempton instead tapped into a growing global industry that caters to struggling couples from parts of the world where egg donation is heavily restricted or cost-prohibitive. They turned to the US, valuing, in Paul's words, the country's "transparent capitalism."

Paul is a commercial real estate adviser, Alice a veterinarian. Whimsical and gregarious, Alice was on *Big Brother* in her 20s and has long been an avid runner. With blond hair and blue eyes, she wanted an egg donor who looked like her and had a similar lifestyle.

In the US and elsewhere, donor agencies serve as matchmakers, posting exhaustive online profiles that would-be parents can search. The deep dives into donors' lives can be innocuous: What's your favorite color? Favorite food? Or at times intrusive: Do you have a lot of body hair? A history of sexually transmitted diseases? Some agencies hire photographers to portray their egg donors in a soft, maternal way. Others feature photos of women in racy attire.

Alice signed up for as many catalogs as she could, paying annual subscriptions of as much as a couple hundred dollars apiece. "Paul would find me up at 3 a.m., just scrolling and scrolling," Alice says. "We're talking thousands of girls. It was like scrolling on Tinder."

In February 2019, during one of her late-night hunts, Alice spotted a just-uploaded profile in Growing Generations' catalog. It was the candidate they'd been looking for.



12. IN GLASS

"In vitro" is Latin for "in glass." In 1978, in England, Louise Joy Brown became the world's first IVF baby after being conceived in a petri dish using the egg and sperm of her biological parents. Her birth touched off a reimagining of how babies could be made.

Next, Australian researchers advanced a solution for women whose eggs weren't viable. Using hormones, they prepared the uterus of a 25-year-old woman in premature menopause for pregnancy, then implanted an embryo created from her husband's sperm and another woman's donated egg. In December 1983 the woman gave birth to the world's first child conceived with the help of an egg donor.

Around that time, researchers began experimenting with freezing eggs. Success rates were low. The human egg is 90% water, and when it freezes, ice crystals can damage the delicate spindle of chromosomes inside. Even as IVF became mainstream, only a few births using frozen eggs occurred over the next two decades.

By the early 2000s a new technology, known as vitrification, allowed eggs to be frozen so quickly that the fluid has no time to form crystals and instead turns into a glasslike solid. In 2012, two of the world's largest organizations representing fertility practitioners backed the technique. Vitrification boomed. In the US alone, the number of fertility procedures using frozen donor eggs or embryos tripled from 2012 to 2021, to 26,700, according to the Centers for Disease Control and Prevention.

Now eggs can be frozen on one continent, fertilized and implanted on another.

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13. 100 RUPEES FOR A FAKE ID

As the police officer scrolls through the WhatsApp messages, fake ID after fake ID pops up on the screen. The teenage girl wasn't an isolated case, and Nova wasn't the only company using donors with forged documents.

In the world's most populous nation, demand for eggs is insatiable. About 1,500 fertility clinics are registered, with possibly thousands more in operation. India's biggest chain, Indira IVF, conducts about 45,000 cycles a year, more than half the number for the entire UK, the birthplace of IVF. And while donated eggs are used in a small percentage of embryo transfers worldwide, more than a dozen doctors in India told us that at their clinics it can range from 30% to 50%.

Cultural demands fuel the business. Indian women face intense pressure to procreate. At a Hindu wedding a priest blesses a bride by wishing upon her eight sons. Once married, the relentless needling begins: "*Aur beta, good news kab de rahi ho?*" or "Child, when will you bring good news?" Everyone feels entitled to weigh in on an intimately private issue: aunties, cousins, neighbors, shopkeepers, taxi drivers, the watchman. Over time, the questions turn into recriminations.

In conservative rural areas, where a woman's standing is already precarious, infertility is the height of shame. Fertility clinics may offer an antidote.

In 2009 a New York-based private equity firm, GTI Group, started Nova as a hospital chain. NEA invested the next year. The year after that, Nova entered the fertility sector, opening three clinics. In 2012, Nova formed a partnership with a well-known Spanish fertility chain, now called IVIRMA. That same year, Goldman Sachs invested; it would eventually become one of the biggest shareholders.

The investors pushed for expansion. In a few years, five ▶

◀ clinics grew to 20. Juan Garcia-Velasco, IVIRMA's global chief scientific officer, who traveled regularly to India evaluating clinical standards, tried to push back, warning that embryologists couldn't be trained fast enough. "The pressure to grow was tremendous," Garcia-Velasco recalls. "We were thinking about the damage to the brand, if anything went wrong."

By 2019, Nova was losing money and its partnership with IVIRMA fell apart. Goldman and other investors sold out to the current owner, the TPG unit. A new chief executive officer cut costs and returned Nova to profitability. The number of Nova clinics tripled in five years, growing to more than 70. Among them was a clinic built in a five-story commercial building at a bustling intersection in Varanasi.

With the increase in clinics came a web of agents, who in many cases wedged themselves between a rich person's desperation for a child and a poor woman's desperation for money.

Anita told police she'd worked as a cleaner at a fertility clinic and saw that women made "good money" selling their eggs. So she sold hers. Then she became an agent, persuading other women to sell theirs—and taking a cut. Seema likewise went from donor to agent. When Seema recruited the teen and discovered she needed ID, Anita told her not to worry, to just send a photo of the girl.

Anita had a go-to person for fake IDs, a young man who worked in a cybercafe, she told police. He'd won Anita's business by underbidding her prior forger. When police interrogated him, he was as forthcoming as Anita, according to police records. He said Anita paid him 100 rupees ($1.20) for a fake ID and 250 rupees for a fake affidavit. He also said she'd initially asked him to falsify one or two cards every few days, but that quickly turned into a torrent—as many as 100 a month.

In December 2023, a month after the arrests, Nova sent a letter to the national ministry of health, saying it was "deeply concerned" about the rise of fake IDs in the sale of human eggs. "The exploitation of oocyte donation through fraudulent identification poses a significant ethical and legal challenge," Nova warned, describing the risk as systemic.

The statements from those arrested in the girl's case indicated that at least a half-dozen agents were part of the same informal network funneling donors to fertility clinics across Varanasi. Those clinics, according to their statements, also included Birla Fertility & IVF, part of the $3 billion Indian manufacturing conglomerate CK Birla Group, and Indira IVF, which is controlled by one of Europe's largest private equity firms, EQT.

Birla Fertility & IVF didn't respond to requests for comment. Indira IVF, in an emailed response, said it "has no involvement in the alleged activities mentioned, nor any connection to the individuals who were arrested." The company said it has strict protocols to prevent such fraud. Goldman Sachs, NEA and EQT declined to comment.

Nova told *Businessweek* it had cooperated with local authorities and cut ties with an egg bank whose employee was among those arrested. It disputed an assertion in the chief medical officer's report that doctors should have been able to determine the girl was underage, calling that "an impossible task." TPG deferred comment to Nova.

"Identification of fake official documents is something beyond our expertise, and we are unfortunately impacted by this deceitful operation," Nova said. "In effect, we are a wronged party here."

The company sent a follow-up letter to the health ministry in August urging it to introduce more robust oversight measures. It didn't hear back, it said. The ministry didn't respond to multiple requests from *Businessweek* seeking comment.

14. "SPERM ON THE BARBECUE" THE MODEL

"Dear Karen," the letter began. "This is Alice and Paul Kempton from Melbourne, Australia. We are very honoured that this journey has led us to you."

Alice had found the perfect donor. Still, she thought it was weird not to know the woman who'd contribute half the genetic makeup of the children she longed to have. And so in her letter, in May 2019, she proposed they meet, something donors and recipients rarely do.

They were both going to be in Portland, Oregon, at ORM Fertility—Alice, for her IVF treatment, Karen, for her egg retrieval. Karen's boyfriend was traveling with her, but she didn't ask him to join their meeting. She considered what she did with her eggs to be her decision alone: "It's an egg, not an embryo."

In August, intended parents No. 2525 and egg donor No. 331427 met at a local restaurant. Karen and Alice chatted for hours, bonding over their shared interests: marathon running, farm living and—the reason for the restaurant choice—pizza.

The Kemptons had to borrow the money to pay for everything. They'd paid Growing Generations $17,500 to find them a donor. Karen's fee was an additional $25,000, plus

Karen provided baby photos for her file—prospective parents often want to know what their donor looked like as a child

$15,000 in travel costs. The clinic charged $40,000. Add in expenses for their own plane tickets, hormones for both Karen and Alice, which ran about $1,000 a month, plus several weeks of lodging, food and a car, and their debt exceeded $170,000.

Alice was worried. Paul was still recovering from a flu that had hospitalized him the previous month, with a fever topping 105F. She asked the clinic: Should we freeze all the eggs and wait for him to get healthy before the sperm collection? They asked Paul to start taking a male fertility supplement and then, following a sperm analysis, assured the Kemptons everything would be fine, Alice says.

The retrieval went incredibly well: 51 eggs. Nineteen were successfully turned into embryos.

Once created, an embryo is incubated for about five days until it turns into what's called a blastocyst, with an inner cell mass that could become a baby and an outer layer that could become the placenta. Then it's either implanted fresh or, as in the Kemptons' case, frozen so genetic testing can be performed.

For five days, the Kemptons explored Portland. Then the doctor's assistant called and delivered devastating news: Not a single one of the embryos was viable.

To Alice, the loss felt like a death. She shouted and cried. She spent the next 20 hours on her laptop, reading every medical paper she could find. She came away with one conclusion: "Of course it was never going to work," Alice says. "Paul had fried those sperm on the barbecue for way too long." (John Hesla, medical director of ORM, told us in an interview: "We work with compromised sperm all the time. We thought it was a reasonable plan to move forward.")

The clinic agreed to do the entire procedure over again for free. "All of us, especially me, are extremely disappointed and saddened" with the result, Hesla wrote to the Kemptons, in an email seen by *Businessweek*. "I have directed the business office to authorize a second IVF cycle with Karen's eggs to create more embryos without charge to you."

Karen also offered to donate again for free. Unlike Amber and Brandy, the women from Taiwan, Karen says she doesn't see this as a marketplace or what she's doing as a sale: "I don't sell my eggs. I've never sold my eggs." She says it's an opportunity to help. But Growing Generations wouldn't allow it, the Kemptons and Karen say. The agency also declined to waive its fee, and instead it offered a 20% discount. (For this story, Growing Generations didn't respond to written requests for comment.)

"The reason for the additional agency fee and contract is because you are cycling Karen for an additional donation, and every donor is limited to 5-6 donations," Jessica Junyent, then Growing Generations' vice president for international development, and Karen's point person at the agency, said in an October 2019 email to Alice.

"As a business, we rely on being able to cycle most donors multiple times in order to make financial sense of everything we do," Junyent continued. "It doesn't seem right or fair to say we should do this for free or hand our donor over to ORM to bypass Growing Generations."

■ COURTESY PELTZ

The Kemptons had to come up with even more money. Now their debt was approaching a quarter of a million dollars.

In December 2019, Karen underwent a second egg harvest for the Kemptons. In any IVF cycle, the math is rarely kind. Thirty-six eggs were retrieved. Nineteen embryos were created. Four passed genetic testing. After five miscarriages, Alice prayed that just one of the embryos would make it.

15. EGG THEFT

THE MOTHER

Imagine you bring a rock embedded with diamonds to a jeweler. Scans show an unclear number of gems inside. The jeweler disappears to his workshop and emerges later with good news: 10 diamonds. You'd have to trust that. But maybe the actual count was higher.

The same is true with an ovary when a patient is under anesthesia. "When the doctor extracts the eggs, it's only him," says a Greek law enforcement official. A woman, coming to, is in no position to question the count. And clinics have sometimes taken advantage.

For three decades, the egg trade has contended with egg theft. And for three decades, different jurisdictions have found their laws and regulatory practices ill-equipped to handle the threat.

In 1995 an investigation by the *Orange County Register* revealed that at a fertility clinic at the University of California at Irvine, eggs were being taken from patients without their consent and used to make other women pregnant. The UC system paid more than $24 million to settle lawsuits filed in the aftermath. But at the time, no criminal statute in California covered the clinic's alleged egg theft. (One reason: There was no saying–definitively–what the eggs were worth.) Afterward the state passed a law making it illegal to steal human eggs.

In Israel, a doctor admitted taking hundreds of eggs from IVF patients without their consent from 1996 to 1999. The doctor took 232 eggs from one patient alone and diverted them to 33 other women. No law specifically prohibited his actions, but, in a disciplinary proceeding, his license was suspended for 2½ years. Today he's the founder of an annual conference: the World Congress on Controversies in Obstetrics, Gynecology and Infertility.

In Italy, a doctor was arrested in 2016 after a woman told police he'd removed her eggs without consent during a procedure. He was convicted and received a 6½-year sentence, which, for health reasons, he was allowed to serve under house arrest.

In Crete, regulatory authorities were aware of possible problems at the Mediterranean Fertility Institute a year before Maria's eggs were collected. In 2019 the Hellenic National Authority for Medically Assisted Reproduction, acting upon a complaint, dispatched two doctors and a lawyer to conduct an inspection of MFI's clinic. The inspectors checked files involving the clinic's surrogacy program, according to Emmanuel Laskaridis, the lawyer. In the end, he says, "we were sure that these were not all the files of the clients they had." The team voted 2-1 to suspend MFI's license for improper recordkeeping.

But the suspension went unenforced, and in the fall of 2020, the Greek parliament abolished the authority. In 2021 the ▶

◀ government named a new president to lead a reconstituted version of the agency: prominent Athens fertility expert Nikolaos Vrachnis, the lone inspector who'd voted against suspending MFI's license.

MFI stayed open, with more women passing through.

16. THE PRICE OF AN EGG THE EGG GIRLS

Brandy can ask for $20,000 for a retrieval. Amber can make as much as $25,000. It's been possible for young women to sell their eggs in the US for decades, but it hasn't always been this profitable. For that, the egg girls and thousands of others owe a woman named Lindsay Kamakahi.

In 1984, when few practices in the country offered to help patients use someone else's eggs, the price—"compensation" is the industry's preferred term—for a batch of eggs was about $250. By 1987 it was $500. By 1993, about $1,500. For the buyers it was still a bargain. Then, in 1999, an ad appeared in the newspapers of top universities for a 5-foot-10 athletic woman who'd scored at least 1400 on her SAT. She'd be paid $50,000 for her eggs.

By then, ASRM, the fertility industry trade group, had begun to reckon with this growing market, saying the amount paid to donors "should not be so excessive as to constitute coercion or exploitation." In 2000 it advised members that compensation shouldn't be so high as to suggest people are paying for a donor's ethnicity or personality or achievements. To determine a fair payment, the trade group did some strange math. It started with what sperm donors earn in an hour, multiplied that by the number of hours required of egg donors, then added an arbitrary amount to account for the additional physical and emotional burden. The result: "Sums of $5,000 or more require justification and sums above $10,000 go beyond what is appropriate."

In 2007, Kamakahi sold some eggs. After college she'd moved to California, where she donated blood and plasma regularly. She realized people needed eggs, too: "That's what I have, and that's what you need." She was matched with a couple who were Asian American academics—she shared the same background. Before she went in for the retrieval, they gave her a gift, a blue cashmere scarf with a card. She says she also received $6,500, which she thought was fair at the time. She already had two jobs, one to support herself, the other to fund travel. The extra money would make a trip to the Netherlands possible.

Kamakahi had male friends who'd sold their sperm and so, for fun, they compared their earnings over the years. It was about the same. Given the ease of donating sperm versus the hardship of donating eggs, that didn't seem fair. By chance, one of those friends was dating a woman who worked at a law firm that wanted to challenge ASRM's donor-compensation limits as price-fixing. Kamakahi looked at how clinics treated sperm donations and bristled: "The guys can do it for the money—and there's no cap on how much they can make. The girls must be nurturing. It's a 'donation.' Just say it's a transaction."

She agreed to be the lead plaintiff in a 2011 antitrust case alleging that ASRM was keeping prices artificially low and that clinics were benefiting: a "buyer-side conspiracy," according to legal documents. (ASRM declined to comment.) "I wasn't financially motivated to file this lawsuit," Kamakahi told us, in her first time speaking publicly about the case. "It was just that girls were getting the short end of the stick. How come it's the women's job to care?"

In 2016 the case was settled, and, by the end of the year, ASRM had removed its guidelines on compensation. Egg donors would be able to earn as much as an aspiring parent was willing to pay. And aspiring parents in China were willing to pay quite a lot. The government had just ended its one-child policy. Older parents who wanted a second child, and many others, traveled to the US, especially to California, where they could take advantage of legal protections and services not permitted at home.

Soon, Amber and Brandy and other egg girls were traveling to the US, too. Brandy received $11,000 her first time, in 2017. Two years later, Amber earned $17,000 for a cycle: "Market mechanism," she says.

17. SHE'S JUST RESTING THE TEEN

Years before the teen in Varanasi was persuaded to sell her eggs, a woman named Yuma Sherpa moved from Darjeeling to Delhi.

Sherpa worked in a garment shop, making little money. In late 2013 a woman approached her with an offer. She could sell her eggs for 25,000 rupees—the kind of money it would take months to save and enough to allow her to visit her 3-year-old daughter, who lived with relatives in the Himalayan foothills. With Sherpa's silky hair, fair skin and almond-shaped eyes, her eggs would quickly find a buyer. Without telling her husband, Sanju Rana, Sherpa said yes.

On Jan. 29, 2014, around 4 p.m., Sherpa arrived at an IVF clinic. Some days before, she'd told doctors that the hormone injections had caused her discomfort and she wanted to back out. The clinic told her it was too late, she had to move ahead. Her eggs were harvested in less than 10 minutes.

From the recovery room she phoned Rana, sounding distressed. Come quickly, she told him.

When Rana arrived at about 7:15 p.m., Sherpa was unresponsive. She's just resting, staff told him, according to court records. An hour passed. A doctor finally examined her, and then an ambulance was called. It was now 10 p.m. She was transported to a hospital, arriving there without a pulse. Shortly after midnight, she was declared dead.

An autopsy determined Sherpa had died from ovarian hyperstimulation syndrome, or OHSS. Her ovaries had tripled in size. Blood and fluids leaked into her abdomen and pooled around her heart and lungs. Such fatalities are avoidable through "judicious use" of hormones and careful monitoring of patients, a case report later concluded.

Since the early 2000s, when India became a popular destination for fertility treatments, a pattern had taken hold: a scandal, followed by calls to regulate, followed by nothing. Sherpa's death made headlines, but interest soon waned. The following year, in 2015, the Delhi Medical Council determined that the doctor who oversaw Sherpa's retrieval didn't appear to be negligent. The council settled the matter as a "rare complication."

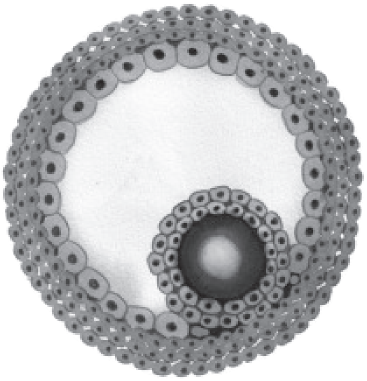
Its sole rebuke was that the clinic—owned by New Life Global Network—had used an agent to find an egg donor. New Life, which offers fertility services on four continents, didn't respond to requests seeking comment.

Two years later, in 2017, the Delhi Medical Council heard another matter. A whistleblower complaint alleged that doctors at the country's premier public research hospital, the All India Institute of Medical Sciences, New Delhi, had extracted 30 eggs from an IVF patient and, without her consent, given 14 to two other fertility patients, according to council documents obtained by *Businessweek*. It was another case of alleged egg theft.

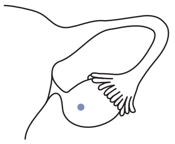
"This is completely unethical," the complaint alleged. The doctor who'd implanted the eggs in the other patients, Neeta Singh, said in a phone interview that she was told by staff that the patient had given consent. She called it a "small procedural lapse" for which she'd been unfairly blamed.

The Delhi Medical Council, citing "the gravity of the lapse," ordered that Singh be suspended for a month. The National Medical Commission overturned the decision and instead let her off with a warning. In December 2021, India passed a law to regulate assisted reproductive technology. A key step was establishing a national board to advise the government on policy and create a code of conduct.

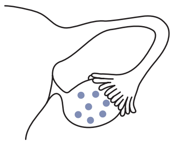
Sitting on that board is Singh.



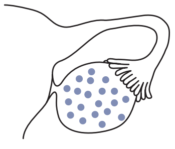
18. OHSS



In a regular cycle, a woman releases **one egg**.



Egg donors take hormonal medication to induce superovulation, usually producing a total of **13 to 25 eggs** in both ovaries.



Producing more than **15 eggs** puts women at risk of developing OHSS. Many donors can produce at least double that number.

Ovarian hyperstimulation syndrome, or OHSS, is an iatrogenic disorder—that is, an illness caused by medical treatment itself. The treatment in this case is the hormones egg donors and IVF patients take to induce superovulation. A mild case can mean abdominal pain, nausea and diarrhea. A severe case can lead to blood clots, fluid-filled lungs, a twisted ovary that could cut off its own blood supply. Death from OHSS appears to be rare.

OHSS still isn't fully understood, and it often goes unreported. The European Society of Human Reproduction and Embryology says mild OHSS affects as many as 33% of IVF patients. The American Society for Reproductive Medicine says moderate to severe OHSS occurs in 1% to 5% of IVF cycles. In the Australian state of Victoria, a strictly monitored market, auditors found that clinics had been reporting only a third of OHSS cases that required overnight hospitalization from 2018 to 2021.

Follow-up care for egg donors is inconsistent, so we don't know how often they experience OHSS. Overall, younger women and those who produce more than 15 eggs a cycle are particularly vulnerable. That describes many donors—Amber, Brandy and Karen among them. "Some clinics try to get as many eggs as possible, especially for their egg banks, by providing higher doses of medication," says Diane Tober, a medical anthropologist at the ▶

◀ University of Alabama and author of *Eggonomics: The Global Market in Human Eggs and the Donors Who Supply Them*.

In the US, the Centers for Disease Control and Prevention collects a wealth of data from fertility clinics and makes public their rates of success—that is, live births. But it refuses to disclose how frequently IVF patients and donors at each clinic experience medical complications. Bloomberg has filed a Freedom of Information Act lawsuit seeking to compel the public-health agency to do so. (The CDC says it doesn't comment on pending litigation.)

19. 24 HOURS IN CUSTODY

THE MODEL

Karen sat in a windowless room of the Miami International Airport feeling scared and exhausted. She'd been escorted there following a nine-hour flight from Buenos Aires. Her phone and Argentine passport were confiscated. A federal immigration agent bombarded her with questions about her trip and tourist visa.

Why are you in the US?

Just visiting.

Who are you visiting?

My boyfriend.

What's his address?

Karen didn't know exactly. Somewhere in Atlanta.

Why is your connecting flight to LA?

Again, she had no easy answer.

It was October 2020, and Karen was making her fifth trip to the US to have her eggs retrieved. She'd last donated seven months earlier, at an HRC in Southern California, when 60 eggs were retrieved—the most of any of her procedures.

Now, in the middle of the pandemic, flights into the US had been slashed and immigration officials had stepped up screening. Officially, they were looking for signs of sickness. But unofficially, the extra scrutiny made it easier to pick apart stories that didn't add up. And Karen's wasn't adding up.

On previous trips, Karen says, she'd been coached by her agency, Growing Generations, to keep the details vague when passing through immigration and to tell anyone who asked that she was on vacation. (Growing Generations didn't respond when asked about this.)

Officials searching Karen's phone found WhatsApp exchanges referencing her contract. When confronted, she confessed. "I finally admitted: 'OK, yes, I know I said I was on vacation, but that contract is why I'm really here,'" she says.

She spent 24 hours in custody. "What am I doing?" she recalls thinking. "Is this really so bad that they are going to treat me like a terrorist?" Karen's entry into the US was denied. She had to fly back to Argentina. Karen would eventually complete the donation in Buenos Aires, and the eggs were shipped to HRC. She developed a mild case of OHSS and had to rest for several days until the fluid in her ovaries cleared up.

Karen didn't get her phone back until she boarded her flight home. When the plane touched down, she powered it up. Her WhatsApp flooded with messages—from the Growing Generations rep wondering why she hadn't made her connecting flight, from her boyfriend, from her friend Kenia.

There was also a message from Alice Kempton. "Paul and I are parents," she said, sharing a photo of a healthy baby boy. They'd named him Rupert. "We love you," Alice said. "So much."

Karen started crying.

"That, for me, was a sign," Karen says. "It was telling me: What you are doing is not bad. It allowed for this baby to be born."

20. WIRETAPS

THE MOTHER

Russia's invasion of Ukraine disrupted the global egg trade, imperiling a key supplier. In February 2022, staff at Ukrainian cryobanks stuffed canisters of frozen genetic material into cars and sped them across the Polish and Slovakian borders. One destination was the MFI clinic in Chania, which announced it would provide safekeeping.

Despite the Greek regulator's earlier findings that the clinic should shutter, MFI's profile was only growing, with donors and surrogates coming in, prospective parents coming in, frozen eggs coming in. (The assisted reproduction authority, in response to a request for comment, didn't directly address why its suspension order hadn't been enforced.)

That same year, the Greek national police's organized-crime unit began looking at a property in Chania where the clinic housed pregnant surrogates. The police launched an investigation in December 2022, with court permission to tap phones of clinic staff.

On Feb. 20, 2023, MFI staff put a Bulgarian woman under anesthesia to retrieve her eggs. She suffered severe convulsions, and her oxygen dropped, according to police wiretaps. The woman lived, though the extraction was unsuccessful.

Police mapped what they said was a criminal network with the clinic at its center. In August 2023 they arrested eight MFI staff members, including the clinic's founding doctor and its scientific director. Both remain in jail awaiting possible trial. The doctor's lawyer didn't respond to a request for comment. The scientific director's lawyer said in an email that a list of questions from *Businessweek* about the police case contained inaccuracies but didn't specify what they were.

The clinic recruited vulnerable women from Albania, Georgia, Moldova, Romania and Ukraine to be egg donors and surrogates and put them up in more than a dozen houses, ▶

Paul and Alice Kempton with their son, Rupert, at their home in Batesford, Australia

■ PHOTOGRAPH BY LISA SORGINI FOR BLOOMBERG BUSINESSWEEK

◀ the police said in a press release. Clinic staff falsified medical and court records and aided in illegal adoptions. The police also said that in hundreds of instances the clinic charged patients for IVF services they never performed, including "sham" embryo transfers.

Police took control of the clinic, which ceased operating, and genetic material in frozen storage at MFI was transferred to Chania General Hospital.

The same month, the Greek press reported that police were investigating the possibility that Vrachnis—the man who'd voted against suspending MFI's license and later became head of the Greek assisted reproduction authority—had taken a bribe. The police didn't arrest or name Vrachnis, but the government dismissed him within the week. (Vrachnis didn't respond to emailed requests for comment for this story.)

The police, now with access to the clinic's files, continued investigating. As they sifted through handwritten records, they spotted a pattern involving IVF patients like Maria. Eggs would be retrieved from the patient. Some, but not all, would be used to make embryos for her. On that same day, a different woman would receive a "donation" of eggs—equivalent to the number not used for the IVF patient.

The details of this ongoing probe haven't yet been made public. But in June, a Crete-based prosecutor prepared remarks for a closed-door presentation at the European Union Agency for Criminal Justice Cooperation, at the Hague. Her remarks, seen by *Businessweek*, revealed that police had identified as many as 75 cases of egg theft at MFI. The final count could be much higher, a Greek judicial source says.

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21. "HI, LOVELY" THE MODEL

Karen's sixth donation took place in late 2021 in Cancún, Mexico, where she moved to wait out the pandemic. Fifty-eight eggs were retrieved, and the batch was again shipped to the US.

She'd planned for that donation to be her last, in keeping with health guidelines. In recent years, Karen had been transitioning from donor to scout. She joined Kenia and Kenia's husband to found a recruiting firm that she says is focused on donor well-being. They'll stroll beaches, eyeing runners and volleyball players while walking right past anyone who's smoking or drinking.

"We tell the girls they should talk to their own doctors, and we really want to make sure they are represented and understand everything involved," Karen says. "I don't want anyone we work with to have a bad experience. I worry about feeling responsible." For each completed donation, the firm takes a 20% fee. Karen estimates they've recruited about 50 women so far.

Almost two years after her sixth donation, Karen got a voice message from Junyent at Growing Generations. Karen was back in Buenos Aires. She was a few months shy of her 31st birthday, past the agency's internal age limit of 29. Her history of hyper egg production and past experience with OHSS put her at greater risk for another bout. She'd already donated almost 300 eggs in her lifetime.

Maria asked that we not show her, directing the photographer instead to places that are meaningful to her, such as the Assumption Cathedral in Chania

■ PHOTOGRAPH BY IOANNA SAKELLARAKI FOR BLOOMBERG BUSINESSWEEK

In the message, Junyent asked if Karen would consider donating once again. She later explained to Karen that Growing Generations was working on behalf of a same-sex couple in Mexico. One partner had a dark complexion and black hair. The other was Australian–tall, blond, blue eyes. That's whose phenotype they wanted reflected in the egg donor, but they'd rejected every candidate in the Growing Generations catalog.

We asked Junyent about this in October. Why did Growing Generations ask Karen to donate for a seventh time, counter to the policies outlined on the agency's website?

It didn't, Junyent said.

"If she did a donation, that is on her, but I did not participate in any donation," said Junyent, who's now a senior associate at the Los Angeles law firm International Reproductive Law Group. "I can assure you that Growing Generations did not do a donation with Karen this year."

But *Businessweek* saw a contract, dated 2024 and drafted by Junyent's law firm, in which the donor is identified with Karen's six-digit number. The agency handling the transaction is identified as Growing Generations. WeFIV, the fertility clinic, confirmed that it worked with Growing Generations on the donation, and we also listened to the voice message Karen received from Junyent on Aug. 16, 2023, about eight months before Junyent left the agency. "Hi, lovely," Junyent says. "Look, I wanted to let you know that I just shared your profile with an intended parent." She wraps up the message with, "There is a possibility that we could have a seventh donation in Argentina."

When we let Junyent know all that, she acknowledged Growing Generations' role in the donation but said she'd left the agency by the time of Karen's retrieval and hadn't remembered the initial conversations. While industry guidelines "typically recommend limiting donors to six cycles, it is common for exceptions to be made," Junyent said in an email, citing the use of "exceptionally healthy donors" as an example.

22. A VAN WITH DARKENED WINDOWS

THE EGG GIRLS

As Amber completed her 11th retrieval in the US in May, another young woman from Taiwan was completing her first. Thirty-two eggs were harvested, and two days afterward, the woman developed ovarian hyperstimulation syndrome, her doctor in Taichung told us. Fluid had collected in her abdomen and lungs, and she had trouble breathing. She had to be admitted to an intensive care unit in Los Angeles. Two weeks later, she was able to return home. Her experience was one reason the health ministry in Taiwan issued a warning in late July about donating eggs in the US.

The warning, the risks, they don't disturb Amber. She's gained a few pounds, from all the hormones, she thinks, but that doesn't bother her either. With the money she's made, she traveled this summer to Hong Kong and Tokyo for vogue dance competitions. By early August she was back home in central Taiwan, training to swim in a 3,000-meter race across Sun Moon Lake. She's expecting to travel somewhere afterward for one, possibly two, retrievals.

Sitting in a cafe, Amber shares some surprising information: In addition to completing 11 cycles in the US, she's sold her eggs four times in China, clandestinely, on the black market. She went in 2021, on her own, during the pandemic. She stayed in a big city, which she declines to identify, until she was ready for her retrieval. Then she moved into a hotel outside the city that the agent had booked. She didn't know the name of any doctor or nurse, or the name of the clinic, or even where it was located. Apparently she wasn't supposed to. Around half past five in the evening, a van with darkened windows pulled up. She and five other donors were told to turn over their phones and keep quiet. Twenty minutes later they arrived at a four-story residence: living room on the first floor, surgery on the second. Amber says it was well equipped, and the doctors seemed well trained. She produced 30 eggs and was paid $13,000.

She stayed in China for eight months, completing two more rounds. She returned in 2023. Same routine. She says it's easier to get to China but scarier once she's there. "But I think this is what you have to overcome," she says. "You can choose not to make this money."

After 15 cycles in the US and China, Amber had made about $213,000.

23. UNCLAIMED EGGS

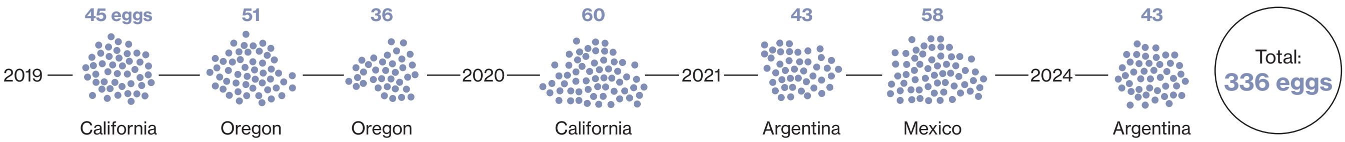
THE MOTHER

The arrests at the MFI clinic created chaos that rippled across borders.

Sam Everingham, the Australian consultant with clients who went to MFI, now helped them navigate the aftermath. Some prospective parents abandoned their embryos, because they'd either given up on IVF or found the bureaucracy daunting, he says. Tracing where eggs came from proved impossible. Clients weren't told who the donors were. Some clients had paid MFI in cash, meaning they lacked paperwork: "They came away without receipts."

The tumult reminded Everingham of the fertility industry he'd left behind in India. He and his partner had been told the same donor provided the eggs for their two daughters. ▶

Karen: History of a Donor



◀ But over time, they began to have doubts. “I got sick of wondering,” Everingham says. So in 2023 they had their daughters’ DNA tested. “It wasn’t a match.”

“That’s happened to a number of us couples that went to India at the time,” he says. And now he was seeing similar turmoil at MFI. “It sent goosebumps up my spine. It was terrifying to see that 12 years later the same things are happening, giving vulnerable parents whatever they have on ice.”

In June, at Chania General Hospital, an embryologist entered a keypad-protected chamber with a climate-control unit displaying a steady 16C, or 61F. Along the walls were six metal containers that resembled R2-D2 from *Star Wars*. Temperature monitors fitted with wires poked from their tops, connecting to online alarms. Each contained genetic material seized from MFI—in all, eggs, embryos and sperm from about 900 people.

An embryologist, Margarita Livaniou, was now their caretaker. She’d worked at MFI for a decade but hadn’t been implicated in the criminal case. When this frozen collection was transferred, she came along. When Livaniou unscrewed the top of one droid, mist rolled out. She reached in and retrieved a rod, known as a straw. Attached were vials, each labeled with a code that we were admonished not to photograph. Were there eggs on this rod? “I don’t know. Maybe,” Livaniou said. She took a closer look, then added, “Yes.”

The collection’s documentation, frustratingly incomplete, made a precise census impossible, Livaniou said. About 125 foreigners had frozen eggs and embryos at MFI, she’d determined. About 40 couples from Italy. Twenty-two from Australia. Some from India, Germany, France. Most of the eggs and embryos remained unclaimed, including many shipped from Ukraine.

24. “SMALL PLAYERS”

THE TEEN

Gopal Krishna sits with the police report that details the Varanasi girl’s case, the pages spread out on his wood-veneer desk. It’s July. To the untrained eye, the investigation looks like it’s pressing ahead, but Krishna, a lawyer who’s representing the family for free, is skeptical.

For two decades, Krishna has worked at Guria India, a local nonprofit that’s helped rescue sex trafficking victims.

He taps at a document in the teenage girl’s file: the report sent by the chief medical officer to police. It had been explicit, saying the incident couldn’t have happened without the knowledge of Nova employees and doctors. Yet when police filed their initial report a week afterward, they didn’t name the clinic or a single employee among the accused.

Would they do it again?

He ticks off questions that could have been answered by now: CCTV footage from the clinic had shown other women entering that day—had police sought to identify whether any others were minors? Where were the girl’s eggs? By law, clinics are required to maintain such records. The accused told police they’d also sent donors to other clinics—had police followed up? (One chain of clinics, Indira IVF, said it was never contacted by police and learned of the case from *Businessweek*’s inquiries.)

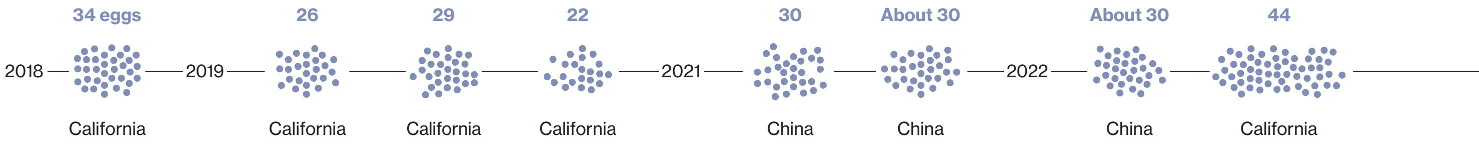
The judge overseeing Anita’s bail hearing questioned why the case appeared to gloss over the role of the clinic. “The owner of the hospital has never been brought into the picture,” Justice Saurabh Srivastava of the Allahabad high court noted, asking if the prosecution had deliberately refrained from implicating “certain highly influential personalities” to focus on “petty employees.”

Reached by *Businessweek*, Anita’s lawyer declined to comment. Seema’s lawyer, Sanjeev Kumar Chaubey, told us, “There was a big egg donation racket going on in Varanasi.” His client, he said, comes from a poor background and made little for her role. “The main culprit is the hospital.”

A year on, Krishna wonders if the arrest of “small players,” as he calls them, was all for show.

In 2022, a year before the Varanasi teen sold her eggs, another girl, 16 years old, told police she’d been forced to sell her eggs eight times over the past three years at private hospitals across southern India. The police investigation languished, and the accused were freed on bail. In May, following questions from *Businessweek*, the public prosecutor realized that, almost two years on, she still hadn’t received a copy of the charge sheet from police to take the case forward. She now says she’s planning to take the case to trial.

Amber: History of a Donor



“What other option do we have?” one woman says

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25. SIGNED WITH THUMBPRINTS

A thousand miles south of the teen’s home in Varanasi is the city of Chennai, India’s health-care capital. On its outskirts there’s a neighborhood where dozens of women have donated eggs. We interview four, who ask that we meet outside their homes, away from their husbands. All sold eggs while in their 20s or 30s, recruited by agents who supply donors for fertility clinics across the city. The women say that an agent, an older woman named Lakshmi, would hover by the communal water tanks where women go daily to fill plastic vats. If she heard a woman speak of financial struggle, she’d say, “I’ll tell you an idea to make money, will you listen to it?”

When we ask why they sold their eggs, one woman says: “If I get money today, we will eat today. That’s all.” Another says she was too weak to donate blood, so she donated eggs instead. They speak of debts, of husbands who are alcoholic and abusive, of wanting to set aside money for daughters’ dowries, even though such payments have been illegal since 1961. They speak of wanting to secure a better future for their children and of wanting to help other women because the stigma of infertility spans India’s class divides. They have jobs, such as cleaning homes, or sewage drains, or silver plates, that pay $3, maybe $5 a day. For their eggs, they’re paid $300 or $350. Unable to read or write, they signed consent forms with their thumbprints. They counted the number of bus stops to know where to get off for their injections. One woman says that after donating, “my entire body was in pain, my stomach was cramping. It felt like pins and needles in the injected area.” Would they do it again? “What other option do we have?” one woman asks.

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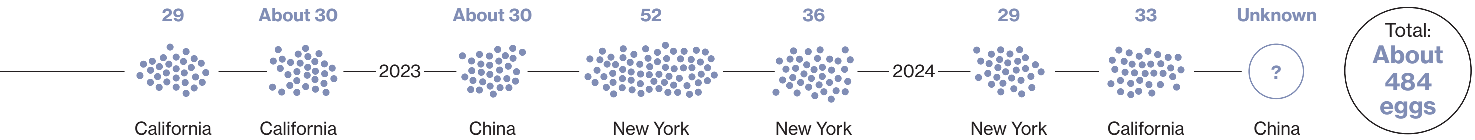
26. 8,000 MILES

THE MODEL

At the WeFIV fertility clinic in Buenos Aires, a small truck pulls into the underground garage carrying two 24-pound canisters.

One is white and looks like a vintage steel milk can. The other, a light gray, could be some sort of heavy artillery shell. The tanks, known as dry shippers, have crisscrossed the globe many times over. This morning, a Monday in July, they’ll begin another journey, the white canister carrying the eggs from Karen’s seventh donation, the other carrying eggs from a donor Karen recruited.

Damian Gustavo Torrera hauls the canisters up the stairs to the clinic’s lobby, where he hands them to a lab tech in blue scrubs and a floral surgical cap. ▶



◀ “Twenty minutes,” the tech tells him.

“I’ll be here,” Torrera says.

The tech heads to the clinic’s fifth floor, where Karen’s 27 eggs have been suspended for 32 days in storage tank No. 4780. The other donor’s are next to it in tank No. 4782. With two techs working together, it takes only seconds to move straws holding Karen’s eggs into the dry shipper. The rest of the 20 minutes is needed to double- and triple-check that the right eggs are going to the right place.

Torrera gets the canisters back along with a plastic folder of paperwork and drives to a warehouse leased by Space Courier, a logistics company he co-owns.

Torrera, a former bartender, is squat and bald, with a passing resemblance to Joe Rogan. A few years back he bought a stake in Space Courier, joining a sprawling logistics network that makes the growing global egg trade possible. Space Courier charges $3,000 per export, and lately business has been good.

The egg is the largest cell in the human body, but it’s far more fragile than sperm or embryos and extremely vulnerable during transport. If the dry shipper tips over, the eggs might be destroyed. If the tank goes through an X-ray machine, the eggs will be destroyed. Too much jostling, too much heat, too much time waiting in customs—the list of threats is long.

At the warehouse, in a third-floor walk-up, the documentation for the two egg shipments is laid out on an old woodworker’s bench. The paperwork is thin: single-page declarations from Argentina’s health ministry that nothing can be X-rayed; from WeFIV that nothing is infectious; and from Space Courier that nothing is explosive. A final page, the shipping waybill, values Karen’s eggs at $135, or $5 apiece. These are the same eggs for which she was paid $35,000.

The two canisters get put in boxes. The one for Karen’s eggs is cardboard, about 2½ feet tall, with arrows saying which end is up. Then it’s off to the airport, where the boxes are put on a dolly and wheeled through the restricted cargo zone. They sit for hours among huge bags of lithium carbonate. They’re swiped for explosives, sent down a conveyor, packed into a scuffed silver container and loaded into the hold of American Airlines Flight 954. The flight is an overnight: Buenos Aires to New York.

The next morning the plane touches down at John F. Kennedy International Airport in Queens, in the middle of a heat wave. Inside the tanks, the subarctic cold hasn’t changed. To make sure, Space Courier checks a sensor that monitors the temperature every second of the trip. US Customs and Border Protection releases both boxes without a physical inspection, according to shipping records.

An eight-hour layover. Then the two batches of eggs go their separate ways. One heads to San Francisco. Karen’s eggs will go to Los Angeles on American Airlines Flight 300.

The box goes up a conveyor belt, into the cargo hold with everyone’s luggage. ▶

Karen’s eggs are harvested at the WeFIV clinic in Buenos Aires

■ ANITA POUCHARD SERRA/BLOOMBERG

◀ Six hours later, at Los Angeles International Airport, the box comes down another conveyor belt. It's lying at an angle. A burly baggage handler yanks it off the belt and chucks it into a cargo cart. For an instant it's airborne. With a thud it lands on its side. The holes that serve as handles are torn as the box heads to American Airlines' warehouse on the edge of the airport. It spends the night there among a sea of pallets and cardboard boxes behind a chain-link fence.

The heat is oppressive the following day when a US Department of Agriculture agent arrives to investigate a pallet of Carolina Reaper peppers shipped from the Netherlands. A couple hours later an agent from the US Fish and Wildlife Service arrives to check out a shipment of 36 Styrofoam coolers holding tropical saltwater fish from Australia. He looks over the paperwork and randomly chooses a handful of coolers to open and inspect.

At 12:05 p.m. a yellow moving truck rolls up to collect the eggs. A cargo handler uses a forklift to transfer the box, now dented and worn. A delivery driver in a newsboy cap signs for the package—no government inspection needed, no visit from the FDA. The agency doesn't review imports of eggs or sperm at the time of entry and prioritizes acting "promptly" to let them reach women who may be undergoing hormonal treatments, according to a 2017 compliance manual.

"Hi," a *Businessweek* reporter says to the driver. "This is going to sound wild, but I've been following this package all the way from Buenos Aires. Do you know what's inside?"

"Inside?" he asks. "No one ever tells us what's inside."

"Human eggs," the reporter says.

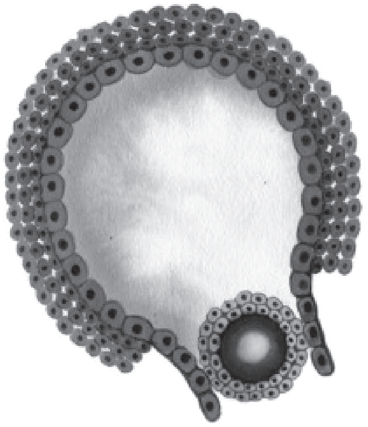
"No kidding."

He stops to consider the box, alone in the vast emptiness of the truck's hold. "Maybe I should put it in the front seat," he says. "You know, with the seatbelt around it?" He ends up fitting it snug in a corner of the truck's bed, then secures it with a canvas belt.

The truck leaves LAX and joins the crush of cars streaming up Interstate 405. It's a 45-minute drive. Low-rise apartment buildings and unkempt brush give way to manicured yards and palm trees.

The truck pulls up to a fertility clinic in Beverly Hills. A sign sitting on the front desk inside advertises $500 egg rejuvenation packages. Around the corner is Rodeo Drive.

Fifty-seven hours and 32 minutes after leaving the clinic in Buenos Aires, Karen's eggs reach their destination. From here they may mark a beginning for the couple in Mexico. Karen doesn't know the couple's names, and neither do we, so this is where our journey ends.



27. NEARLY IMPOSSIBLE TO TRACE

In much of the world, the cross-border egg trade operates with minimal government oversight. *Businessweek* sought data on egg imports and exports in 15 countries, through records requests, private vendors and research reports. It was difficult to draw conclusions, beyond this: It's nearly impossible to trace the flow of frozen eggs or of the donors themselves.

We found that Japan and Spain don't reliably track the movement of eggs in or out. Canada keeps a list of companies registered to import eggs but not how many shipments they bring in.

In some countries that track shipments, the numbers show growth is booming. In Italy, imports of eggs nearly tripled over five years, reaching 17,873 shipments in 2021. In Brazil, imports increased from only 4 in 2016 to 2,668 shipments in 2023.

■ ANNABELLE CHICH/BLOOMBERG

In the US, the FDA maintains a database where clinics and egg banks are required to register imports. Only 64 shipments are listed from 2018 to 2024. Of the two shipments we followed from Buenos Aires to California in July, only Karen's eggs were registered. The eggs from the donor she recruited were not. When we asked about the discrepancy, an FDA spokesperson confirmed the entry wasn't listed in the database and said the agency would look into it.

28. "I JUST WANT TO KNOW" **THE MOTHER**

On a recent sunny weekday in Chania, Maria greets a reporter at the store where she works in the town's bustling center. An icon of the Virgin Mary holding the baby Jesus hangs on the wall. Asked how she's doing, Maria turns to her computer screen, opens a web page with Google Translate and types a word in Greek on the left-hand side. On the right, the result emerges: "psychologist."

She's getting professional help, but her therapist says there simply isn't an entry in the psychology manuals for the trauma of having your eggs stolen.

Maria compares it to kidnapping, like old stories of women being told their baby hadn't survived birth, when actually they'd been given away for adoption. "They don't even have to do that anymore," she says. "They just take your eggs."

Scenarios rattle around in her imagination. One is: Her child grows up and falls in love with someone roughly the same age. Maria will wonder: Could they be siblings? Will Maria be on constant lookout for a family resemblance? And if another child was born from Maria's egg, what about that child's family? "The child's mine, but it's not mine," she says. "It's their child."

Maria has been thinking about those tracking codes—the one for her, and the one for the woman who received her eggs. She's been pondering what to do with them. She hopes police will provide a way for families to connect with each other—if they want. But if there's no official route, the women in possession of those codes could act on their own, perhaps using social media. It could be as simple as a Facebook group where mothers post, "Code 1234 seeking Code 6789."

"I don't want to take their child away from them," Maria says of the family, which she imagines is as far away as North America or Australia, or as near as her neighborhood in Crete.

"I just want to know."

29. RETRIEVALS: 16 AND COUNTING **THE EGG GIRLS**

When we talk with Amber again, in September, she tells us about her side business as an agent. For every match she makes, the aspiring parents usually pay her from $2,000 to $5,000. She represents about 30 donors. She's sent many of them to China. If they worry about what might happen there, she promises that they won't feel any pain under the anesthesia, that their organs won't be cut out.

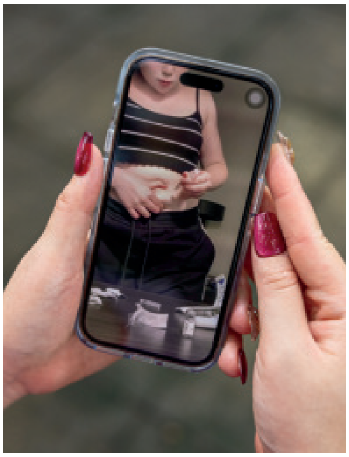
But now, she says, "they're cracking down on the business." Local news reports confirm this. Her main contact in China was arrested, held for four months and released in August. He's already been in touch. He said he'd be taking precautions: better that donors administer the first week's hormone shots in Taiwan and travel to China after. Less time on the ground, maybe less risk.

Amber has other plans for her egg girls. Chinese investors, doctors and patients have already been shifting to Phnom Penh, Cambodia. Travel is easier; costs are lower. Surrogacy is prohibited, and clinics must get permission to operate, but few other laws govern the industry. So it's a gray area, she says, but she can work with that.

For herself, though, she's willing to go back to China if the timing and the money are right. In October she's there for retrieval No. 16. She'd rather we not mention exactly where. She says she had no trouble, though she doesn't know how many eggs she produced. The clinic wouldn't tell her, and she wasn't going to ask any questions while in China. She left with about $11,000.

Amber has earned about $224,000 in all. Some of that has gone toward her mortgage, tuition to become an English-as-a-second-language teacher in the US, travel to dance competitions. After the retrieval, she visited Tokyo and Bangkok. In November she told us she had arranged two more, perhaps her last. This spring, Amber will turn 31.

Maybe when she's 34, definitely before she's 36, Amber hopes to have a child of her own. A year ago, she made a deal with a New York egg bank. In return for giving the bank half the eggs ▶



Amber shows a video of an injection she gave herself before an egg retrieval

◀ retrieved, she was allowed to freeze the rest for herself, for a decade without charge. It's a hedge. When the time comes, Amber hopes she can find a tall, Ivy League-educated man, Caucasian or Hispanic, to provide sperm. She's prepared to pay.

30. A LIFE IN RUINS **THE TEEN**

In the year since the girl's eggs were harvested, the phone she'd coveted has turned out to be a curse.

It seems everyone in Varanasi knows she did something illicit for money. Few understand what it means to sell eggs or how it's done; her own mother initially conflated it with sex. "My daughter is a virgin," the mother said in her police complaint. "My daughter has been sold off for some wrongdoing."

The girl dropped out of school after seventh grade, unable to face the taunts. Neighbors confront her mother in the streets, blaming her for giving her daughter too much freedom. Whispers spread the kind of doubts dreaded by Indian women: Can she still have babies?

The teen sits in a metal chair, wearing a white kurta that accentuates hips that have just begun to widen with puberty. She was good in school, a quick learner. Her mother is a wonderful cook, but the girl is content making instant Maggi noodles in a cup. She has other ambitions. She wants more than the path of wife and childbearer. She used to dream of becoming a beautician. "I want to do something in life," she says.

Now shame gnaws at her. "I feel that no one would even want to get married to me," she says. Her voice falters, and she presses her fingers into the corners of her eyes, trying to stop the tears. All she'd wanted was a phone. "I am a kid, I have the mind of a child. I didn't know that it was a huge deal."

The five arrested have since been freed on bail. Meanwhile, she sits at home, barely going out, toying with the phone as her window to the world. She asks why "big doctors," held in such high esteem in Indian society, couldn't discern a child from an adult. She wonders why she's the one being blamed. Even her own grandfather blames her for bringing shame on the family.

"I was wronged, too," she says, her bare feet kicking the rail of the chair. "I want people to understand someone's helplessness—to not take advantage of that helplessness."

Her mother says, "Whatever happened to my daughter should not happen with anyone else."

Some 2,000 years ago, India gave the world one of its earliest codes of medical ethics in a body of Ayurvedic texts, including the Charaka Samhita. They laid down for healers a core principle: to help all patients of all means.

No one told the teen that she was never the patient, that she was only a tool in the service of the real patient. She barely grasps that by now her eggs may have been used to create children she'll never know. One side walked away with the gift of life; the other got a one-time payment. The fertility industry sells this as a win-win. Rarely is it an arrangement between two equals.

Too late, the girl realizes she gave away far more than she received.

31. RUPERT AND MATILDA **THE MODEL**

About an hour southwest of central Melbourne, in a ranch house on 2½ acres of land with a chicken coop and playground out back, a new kind of extended family catches up over videoconference on a Tuesday in September.

All around are the chaotic markers of a two-toddler home: bibs hanging to dry, toys strewn about, a half-eaten slice of apple on the couch. Alice Kempton sits on the white leather sofa with a laptop on her knees, orbited by Rupert and Matilda. Rupert is 4; Matilda, 1. Alice, who recently turned 41, gave birth to Matilda in 2023 using another one of the four embryos created from Karen's eggs. She's already contemplating baby No. 3. (Paul's not convinced.)

Karen smiles on-screen from 7,200 miles away. "You're both getting so big."

"Do you remember who this is, Matilda?" Alice asks. "Do you remember what she gave us?"

"Daddy, too," Matilda responds in her toddlerspeak.

"That's right," Alice says. "She and Daddy made the embryo that went into Mummy's tummy."

It's not uncommon in Australia for donor-conceived people to know who gave their biological material so they could be born. Several of the country's states have passed legislation giving children the right to know their heritage.

It's a culture that Alice and Paul embrace. There's a world map in a corner where Rupert and Matilda can pinpoint where Karen lives and where the Portland clinic is. On a low shelf of books, they can pick one of a half-dozen stories explaining what it means to be a donor-conceived person.

It's the sort of relationship that many children born from the technology will never experience. That's especially true as the industry ships more frozen eggs across borders, many sourced from nations without strong right-to-know laws or reliable recordkeeping. Karen has donated 336 eggs, in 7 retrievals over 5 years in 3 countries. At least five pregnancies have resulted. Rupert and Matilda are the only children born of her eggs she knows.

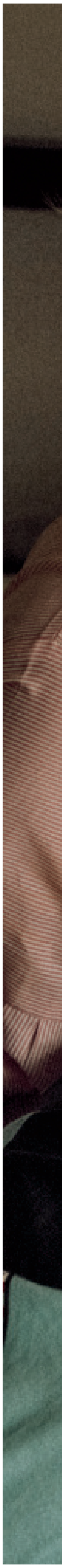
About 10 minutes into the video chat, both children start to lose interest. Rupert runs outside and digs for imaginary treasure. Matilda picks daisies.

Alice and Karen are left alone to talk. Alice says she started running again. Karen is training for a trek and asks for tips. The conversation circles back to Matilda. Alice says she's starting to see more of Karen in her.

"We should send new photos to your mum," Alice says.

Karen's phone is filled with such photos, which she eagerly shows off. Sometimes she seems like a proud aunt. Other times she's an agent, trying to persuade other young women to become egg donors, too. Ⓑ

—With Rachel Adams-Heard, Naila Khan, Lucille Liu, Kendall Taggart, Smitha T.K., Advait Palepu, Vicky Kaiyi Feng, Philip Glamann, Sabah Meddings, Angus Whitley and Kurumi Mori



Alice Kempton with her two children, both born from Karen's eggs

■ PHOTOGRAPH BY LISA SORGINI FOR BLOOMBERG BUSINESSWEEK

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PURSUITS

THE 25 PLACES TO GO IN 2025

→ Whether wanderlust compels you to find a spot before your fellow tourists do or you enjoy discovering a new side to the tried-and-true, these incredible destinations are calling

→ Edited by Nikki Ekstein

→ Photograph by Gabriela Herman

↑ Famara Beach in Lanzarote, one of Spain's Canary Islands

ALGERIA OPENS UP

WILL BOWEN

→ As insular as it is beautiful, Africa's largest nation is now welcoming visitors to its uncrowded wonders

→ By Sarah Khan

1

Piercing trills ring out across Algiers' Rue Didouche Mourad, and my eyes dart across the ivory Haussmann-style buildings to trace the source. The familiar ululation is a Proustian trigger: If you spend enough time in the Arab world, you know this sound—a *zaghrouta*—means a party is unfolding, and I want in.

Sure enough, a quartet of musicians spills out from a salon onto the sidewalk, followed by a chorus of women swathed in jewel-toned velvet jackets called *karakous*. The singing escalates with high-pitched abandon as a bride emerges and slips into a white SUV. As passersby surge into the street, I get sucked into the fray, clapping along as the locals pulse their hips to the beat of the *darbuka* drums. Then, just as spontaneously as the celebration erupted, it ends.

I've long been obsessed with Algerian music, from the infectious cult hits of *Raï* (Algerian folk) king Khaled to contemporary hip-hop bangers by Soolking, so it's fitting that this interlude is my introduction to the largest country in Africa. I'm on the first day of a guided tour by British adventure outfitter Wild Frontiers, which helps me peel back the layers of this Mediterranean mille-feuille, with its alluring strata of Roman ruins, whitewashed mosques and Ottoman palaces, not to mention a treasure trove of immaculate neoclassical, belle epoque and art deco buildings left over from 132 years of French occupation.

Algeria certainly has its international stars: French soccer legend Zinedine Zidane, musicians DJ Snake and Cheb Mami, Yves Saint Laurent and Albert Camus were all born here or can trace family back. But if you don't know much about the place at all, that may be by design. Algeria retreated inward after two especially difficult chapters in its history: A brutal eight-year revolution ended French rule in 1962, and a bloody civil war between the military and Islamist groups condemned the 1990s to history as the country's Black Decade. Now Algeria is stable—and has until recently resisted globalization in part as an effort to preserve its once-threatened identity. "Our

← The oasis town of Taghit stands before the Grand Erg Occidental sand dunes in western Algeria

festivals, our culture is for ourselves," novelist Hamza Koudri tells me at Dojo, a gallery and community space in Algiers' Birkhadem district. "That won't last forever if tourist culture comes."

I start in the elegant capital of Algiers, where the stately French-built National Museum of Fine Arts stands in the shadow of the swooping spire of the Martyrs Memorial, honoring the 1.5 million Algerians killed in the war of independence. In the historic casbah, which slinks down a steep slope toward the Bay of Algiers, there are neither tour groups nor beckoning salespeople. When I settle into a rooftop divan at the restaurant Dar El Baraka with a bowl of rechta (delicate wisps of pasta served with chicken, hard-boiled egg and cinnamon-laden gravy), I'm joined by a lively group of locals and a stray turtle meandering underfoot.

Although the country rewards its visitors with spellbinding scenes at every turn, it wasn't easy to get here. Only seven countries (largely neighbors) have visa-free access, making it one of the most closed-off nations in the world. Tourism represents only 2% of Algeria's gross domestic product—25% is oil—with most of its 3 million annual visitors coming to see family.

Recently, those statistics have started to change. In 2023 the government introduced a visa-on-arrival program as the first step toward building a meaningful tourism economy that aims to welcome 12 million annual visitors by 2030. With even Saudi Arabia pivoting from oil toward tourism, Algeria must compete with its neighbors, Morocco and Tunisia, for international visitors or risk falling behind.

For now, the visa on arrival is only an option for travelers planning to spend 70% of their time exploring the desert vistas in the south. For everyone else, Algeria's visa process remains Byzantine, requiring thick sheafs of paperwork and some dumb luck. What's more, foreigners are required to travel with tour operators and must be accompanied by a constant retinue of police escorts—for bureaucratic reasons rather than any real safety concerns. Hip shops selling pricey ceramics and stylish silk caftans fail to accept credit cards, and outside of the simple but sufficiently comfortable hotels, Wi-Fi is hard to come by.

But here, on a leafy, tourist-free boulevard in the center of the capital, watching women cross the street carrying spindly baguettes and vendors doling out mdhajeb flatbreads under colorful frescoed ceilings—with the sounds of French, Arabic and Berber swirling together into the local Dzirya dialect—I start to understand a new definition of luxury. It isn't shaped by opulent resorts and eye-watering price tags but by accessing a rare window into a culture that's traditionally been cloistered away. During my week in the country, I see more cats than foreigners.

After checking out from Algiers' Hotel El Aurassi—a tall, white building with a blocky silhouette and a vast pool deck—we take a van eastward, passing the sprawl of the third largest mosque in the world and winding through eucalyptus-covered hills before arriving at Djémila. Once the thriving Roman colony of Cuicul, the site is now a dizzying assortment of astonishingly preserved Roman ruins. Anywhere else in the world, a cache of antiquities at this scale would be a tangle of barriers and walkways and plaques designed to usher hordes of tourists and protect relics, but these are all but deserted save for a group of teenage boys sharing a cigarette.

That night I stay in Constantine, a city of a half-million people where seven bridges hang across the wide gorges of the Rhumel River like elaborate, sky-high tightwires. There, I stumble onto spontaneous guitar jam sessions and come away with a dozen new Raï and poplike *chaabi* tracks for my Spotify playlist. And in the Sahara, my hair lashes in the wind against my face as I slice ribbons through the dunes in an exhilarating ride on a four-wheeler. Sure, there are fewer working seat belts compared with my dune-bashing experiences in Dubai and Oman, but my trepidation only adds to the exhilaration.

Among my six fellow travelers with Wild Frontiers, past passport stamps ➔

For flight and hotel prices for each destination, personalized for you with data from Kayak, visit bloomberg.com/where-to-go

← include Armenia, Kyrgyzstan, Mali and Sudan. “I like to go to places before there’s a Starbucks there,” quips Karen Johnson-Gale, a retiree from Colorado.

I see where she’s coming from. Visiting a country like Algeria now, before it’s fully primed for the spotlight, is a rare privilege. It comes with its frustrations: Airports are a maddening obstacle course of redundant passport and luggage screenings and late-night domestic flights, for instance. But it also lets visitors witness a vibrant culture lived with practically zero interest in the Western gaze, and where panoramas such as the palm-studded Saharan oases near Timimoun are utterly unblemished by tour buses and influencers with billowing dresses. With its maze of marble columns, 40,000 *zellige* tiles and whimsical frescoes of Mecca and Medina, Constantine’s alluring palace of Ahmed Bey is as worthy of camera-toting tourist throngs as the mosaic-covered Bahia Palace in Marrakech. But I get to see it in almost complete privacy.

↑ The Martyrs Memorial in Algiers

“I think Algeria is having its moment,” says Marc Leaderman, product and operations director of Wild Frontiers, noting that the company has seen a 75% increase in bookings here from 49 in 2023 to 86 in 2024. “There’s a lot of talk of overtourism, and people are looking for destinations that offer them an antidote to that.”

It’s unlikely that Algeria’s extraordinary vast landscapes will change meaningfully, even if more people come to see them. But the real endangered travel experience may lie in quieter moments spent watching quotidian life unfold as it has for generations. It’s these fleeting scenes that I found stirred me most.

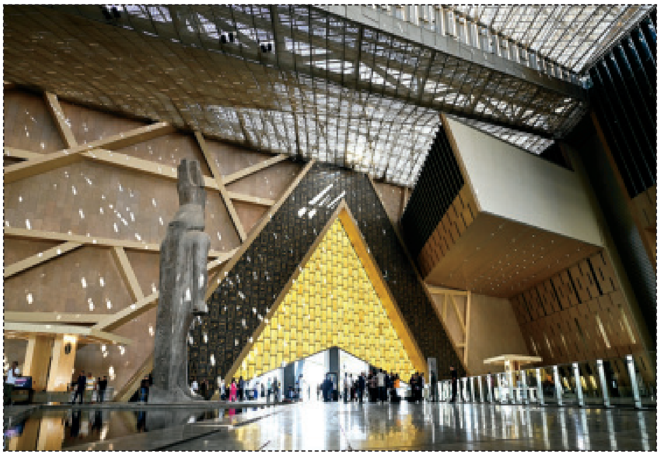
Take one of the more harrowing travel days I’ve had in recent memory, a consequence of a missed flight that sent me hopscotching across the country’s vast desert interior on my way back to Algiers. As soon as my reassigned flight finally hit altitude and the seat belt sign went off, a man rose at the front of the plane and, in a booming voice, spontaneously led the entire plane full of passengers in a rousing *dua* (prayer). As he made throaty entreaties to Allah to keep us safe and bless our journey, I joined the passengers chorusing along with passionate “*ameens*.” Ⓑ

→ Located in the northeast, Constantine is known as the city of suspended bridges

■ MEMORIAL: DUKAS/UNIVERSAL IMAGES GROUP/GETTY IMAGES. BRIDGE: ISTOCK/GETTY IMAGES. MUSEUM: SAYED HASSAN/GETTY IMAGES

MUSEUMS WORTH THE TRIP

➔ In places that also happen to have fabulous new hotels and offer unique experiences



➔ The largest archaeological museum is in Egypt

2

The Grand Egyptian Museum, Giza, Egypt

More than 100,000 artifacts, from the years of pharaonic civilization to modern times, will be on display at this 5.2 million-square-foot edifice, which has been in the works for almost 20 years. King Tut's 5,000-object treasure collection, including his sarcophagus, will fill a single gallery. An opening date has yet to be set, but tour operator Abercrombie & Kent Ltd. has already started snagging early access to several exhibition halls now open for previews.

WHILE YOU'RE THERE...

Board a luxury sailing cruise: India-based Oberoi Hotels & Resorts is preparing to take VIP visitors down the Nile on a pair of *dahabeyas*, sailboats traditionally made for royalty. Each will have space for 14 guests in seven river-view cabins—as well as a resident Egyptologist and a full staff of butlers—plus a pool bar, an interactive kitchen for daytime cooking classes and an onboard spa.

3

Fenix, Rotterdam

When it opens on May 16 in a historic 172,000-square-foot warehouse, Fenix will explore how the world has been shaped by migration and cross-cultural exchange. Exhibitions will pull together international art stars William Kentridge, Steve McQueen, Gordon Parks and Alfred Stieglitz, along with migration-themed artifacts, such as the very first refugee passports, issued after World War I. The building, once part of the world's largest transit warehouse, will be topped by a gleaming double-helix staircase and observation deck dubbed "the Tornado." From there visitors can see the massive harbor, where more than 3 million emigrants (including Willem de Kooning and Albert Einstein) boarded ships to start a new life somewhere abroad. Over the centuries many millions more arrived there, too, shaping Rotterdam into the culturally diverse city it is today.

WHILE YOU'RE THERE...

Stroll around! Rotterdam has long been overlooked by tourists in favor of better-known Amsterdam and the Hague, an unfortunate omission given the city has some similarly charming waterways and pencil-thin canal houses—all perfect for ambling past. Stay at the Mainport Hotel, which wraps a head-to-toe renovation and joins Hilton's Curio Collection this spring; wide windows in its rooms face the vast Maas River.

4

Naoshima New Museum of Art, Japan

Japan is full of places for deep contemplation, and Tadao Ando's latest project on Naoshima Island, just south of Okayama in the Seto Inland Sea, will be worth prioritizing. It joins nine others on the spectacular Benesse Art Site, a tiny speck of land that may have more polka-dotted Yayoi Kusama pumpkins than it does permanent residents. When it opens in the spring, the three-floor New Museum will feature works from big-name contemporary Asian artists including Takashi Murakami and Cai Guo-Qiang in a minimalist, pebble-walled building designed to blend into the hilly seaside. From a terrace cafe on the top level, you'll be able to watch fishing boats pass through a landscape that's dotted with fog-shrouded volcanoes.

WHILE YOU'RE THERE...

With all the savings offered by a weak yen, there's no better time to extend your city hop. The heritage-focused hotel brand Capella is heading to Kyoto with 92 rooms, an *onsen*-inspired spa and an enviable location: a short walk from the Unesco-protected Kiyomizu-dera Temple. A Kengo Kuma-designed outpost of the Shangri-La hotel chain is also set to open in the cultural capital, and Four Seasons and Waldorf Astoria give a five-star boost to Osaka.

↑ The triumphal Arch of Constantine, next to the Colosseum in Rome

TOWN AND COUNTRY

→ Three intoxicating urban destinations with bucolic getaway chasers

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5

Rome

During the Vatican's 2025 Jubilee year, the Pope will open five Holy Doors at churches including St. Peter's Basilica as a symbol of salvation for Catholics around the world. And the surrounding city will be exciting and more accessible even for nonreligious travelers, as $1.4 billion in citywide infrastructure investments reach completion. Those funds have gone toward the renovation of all three fountains in the Piazza Navona, upgrades to green areas around the Vatican and the Mausoleum of Hadrian (more commonly known as Castel Sant'Angelo), and the christening of the flagship stations for the $3 billion Metro Line C that runs under Roman ruins. The Porta Metronia and Fori Imperiali-Colosseo stops will relieve traffic and double as archaeological museums, allowing you to look through glass walls at ancient history while awaiting your train.

Add to that an enticing array of hotel openings from Corinthia, Rosewood, Nobu and Orient Express—plus the 74-room Romeo Roma, one of Zaha Hadid's final projects, with multiple pools and a rooftop lounge in a 16th century palazzo near Piazza del Popolo.

PAIR IT WITH...UMBRIA

You'll need a little solitude after Rome's Jubilee crowds. So head two hours north to the Six Senses Antognolla, a reimagining of the 12th century Castello di Antognolla, which towers over hills of olive groves. It will have horseback riding, cooking classes and 71 rooms tucked inside.

6

The Upper East Side

Manhattan's most-Botoxed neighborhood has just gotten a lift of its own: The Frick, one of the gems of early 20th century New York, is reopening again after five years and a head-to-toe makeover, its first renovation since 1935. As part of the redo,

■ ROME: FEDERICA VALABREGA. UMBRIA: COURTESY SIX SENSES

the museum is opening its second floor to the public, adding a cafe and restoring the once-lush gardens.

The UES hotel scene, too, is getting an upgrade: The Surrey, a local staple, has undergone a stately overhaul by high-end European brand Corinthia Hotels, creating competition for its celeb-packed neighbors, the Carlyle and the Mark.

That's a lot of fresh energy in a traditionally sleepy neighborhood, and it doesn't stop there. Three new restaurants are joining the ranks of Manhattan's most-difficult-to-book spots: Cafe Commerce is a spinoff of a shuttered West Village favorite, with its famous old murals preserved and hanging over the new bar. (Expect to see chef Harold Moore's towering coconut cake and a version of his epic roast chicken.) Chez Fifi, from the tradition-minded team that brought us Sushi Noz—where the omakase costs $550—has a similarly reverent take on old-school French classics. And Le Veau d'Or, one of the area's OG celebrity hangouts from the 1930s, has been given new life by Lee Hanson and Riad Nasr, the acclaimed chefs behind Francophile dining rooms Le Rock and Frenchette. Even the restaurant on the ground floor of the Surrey is bringing some heat: Casa Tua is where the who's who dine in Miami, and the New York outpost is packed with a glittering crowd of designers, execs and socialites at virtually all hours of the day.

PAIR IT WITH… LITCHFIELD COUNTY

This pastoral area of Connecticut, a few hours north of New York, finds historic farmhouses playing as second homes to VIPs like the Murdochs and Meryl Streep. The Abner and Belden House & Mews, the area's first two super-stylish hotels, are opening up the county's ample lakes and rolling emerald hills to the rest of us.

7

London

Many of London's most exciting hotel and restaurant openings will have one thing in common: proximity to the Elizabeth line, which went into service in 2022. Hop off the Underground at Bond Street in Mayfair, and you'll soon find the city's newest ultraluxury contender, the Chancery Rosewood. The hotel will fill the former US Embassy with 146 spacious rooms and two big-deal restaurants: the first UK location of New York's celebrity-packed Carbone and the resurrection of storied London hot spot Le Caprice. A few stops away at Liverpool Street, Gordon Ramsay will spread five venues throughout London's tallest new office building at 22 Bishopsgate. That includes Lucky Cat on the 60th floor, which, when it opens in February, will be the highest dining room in the city.

Don't overlook Canary Wharf, a burgeoning food and drink destination on the line's eastern end, where you can sample playful takes on British classics on the water at the 500-seat Roe. (Get the snail vindaloo flatbread and crowd-pleasing bloomin' onion.) The just-opened Hovarda offers an Aegean menu starring the roasted lamb dish kleftiko and raki drinks. There's also new French brasserie Marceline, on a floating pavilion on the Thames, where you can dine on Dover sole grenobloise and mussels marinière. Like the Elizabeth line, it's already bringing the masses.

PAIR IT WITH… BATH

Take the tube to Paddington station, where a 90-minute connecting train whisks you to the domain of Netflix's *Bridgerton*. (The historic city features heavily in the show.) Next year, for local hero Jane Austen's 250th birthday, Bath will host a series of summer balls, costumed parades and yuletide parties—because nobody celebrates (literary) royals quite like the Brits. Ⓑ

← Six Senses Antognolla, a modern spa resort in a medieval Italian castle

➜ The Jameos del Agua volcanic caves in Lanzarote, Canary Islands

8

Seville

9

Canary Islands

SPAIN3.0

➜ More to love in a country that can't seem to go out of style

■ PHOTOGRAPHS BY GABRIELA HERMAN FOR BLOOMBERG BUSINESSWEEK

Perhaps you've been hearing about all your friends going to Spain for the past few years. Or you've been yourself, sipping tempranillo at the tapas counters in Madrid and basking on the beaches of Mallorca. Either way, you've got the Spain bug. So what are the next hot places to go?

Historic 8 **Seville** has emerged as a rising contender for those who've loved the country's other big cities. Long favored by university students and overlooked by luxury travelers for its lack of a major airport, the capital of Andalusia boasts 300 days of sunshine and a lovely mix of Moorish and baroque architecture. This is the birthplace of flamenco and home to modern marvels such as the Metropol Parasol, a public plaza where you can shop under umbrella-like structures that resemble Seussian mushrooms.

All this is enticing enough for travelers on the hunt for character-packed B-side destinations instead of overcrowded tourism hubs. But a pair of stylish boutique hotels—with rates under $200 a night—are livening up Seville's hospitality scene, too. Pick the Vincci Selección Unuk if you're liable to spend afternoons on a rooftop deck, surveying the Gothic spires of the city's cathedrals at eye level. Or book into Ocean Drive Sevilla, with its Scandinavian-inspired decor, if you'd rather be at the doorstep of the city center's winding cobblestone streets.

And let's dispel the airport myth, while we're at it: Seville is shockingly easy to reach, especially since new railway operator Iryo added train routes from Barcelona and Madrid in 2023. It's only 2½ hours from the latter city—and as little as €20 ($21), which makes for a more seamless voyage than many connecting flights.

Speaking of flights, you'd think the 9 **Canary Islands** would be significantly harder to get to, given the Spanish archipelago is closer to Morocco than Madrid. But a slew of international carriers will take you directly to three of the largest islands—Tenerife, Gran Canaria and Lanzarote—where you can hike through vertiginous landscapes, shop in boutiques tucked along cobbled lanes or just lie on the beach with a book.

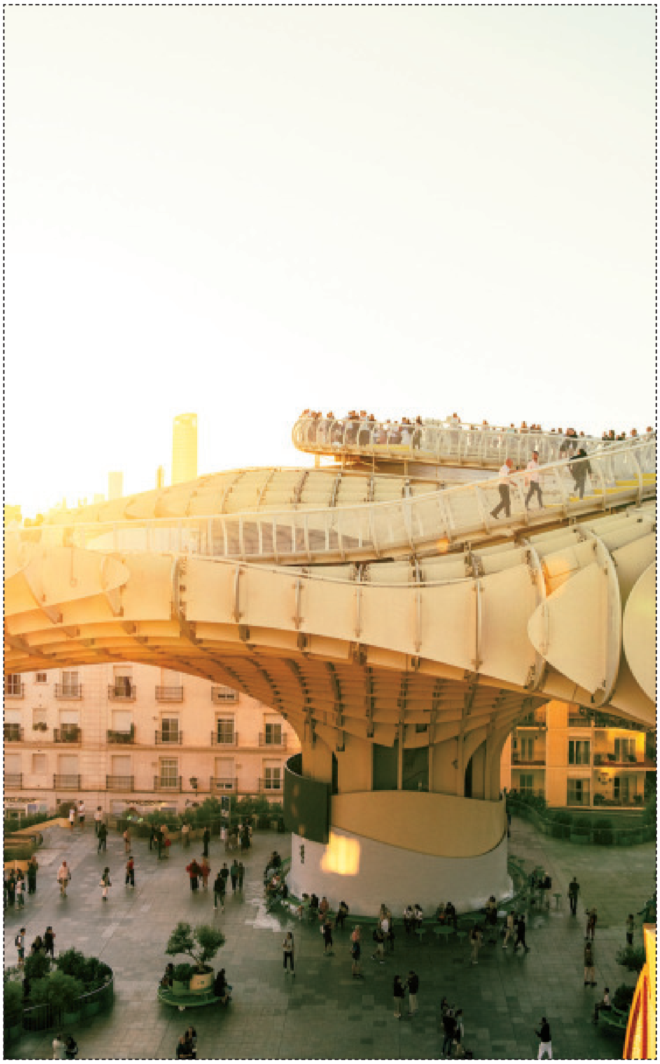
The Canaries are much more than a boozed-up stretch of beaches for British stag parties. They're a year-round vacation destination of surfable coves, charming medieval villages and rambling farmsteads. At the last you'll find treats like fresh flor de las nieves cheese, which has a gooey inner core under its thick round rind, and fruit-forward, minerally malvasia wines. And that's merely a small selection of the Canaries' vast culinary wealth.

More tourists are catching on to these wonders, spurring a boom in hotel investment (and unfortunately some protests around tourism growth, too). With the Canaries projected to welcome 17.8 million visitors in 2024—up 1.6 million from a year earlier—it would be best to get there before everyone else does.

If you have time for only one island, make it Lanzarote, which has recently become the first with grade-A resorts. A Grand Hyatt along the sea and a more secluded Alila (the debut European outpost of the luxury brand) high in the hilly interior are due in 2025. They'll join the recently opened César Lanzarote, a boutique inn with a high-concept design near the wineries of La Geria, and the newish Hotel Casa de las Flores in the colonial village of Teguise.

Make sure to grab a meal at Restaurante Palacio Ico to savor local dishes including cherne fish and Canarian black pig. Then hit the waves at Famara Beach with Lanzasurf, a quality outfitter operating along, for now, blissfully secluded shores. Ⓑ

→ Metropol Parasol is known locally as the Setas, or mushrooms, of Seville



HOT COOLCATIONS

➔ The buzziest summertime escapes increasingly are those that won't leave you drenched in sweat

➔ A skier at Portillo in Chile

10 Skåne

11 Greenland

12 Portillo

As France, Greece and Italy all experienced record heat in the summer of 2024, those who typically flock to the Mediterranean veered north to Nordic Europe instead, where they enjoyed cool breezes even in peak beach season. This shift is one of the many ways climate change is rewriting travel patterns in real time, and in 2023 it added some $124 billion to the economies of Norway, Denmark and Sweden. For 2024, travel agents registered a 47% year-over-year increase in summertime bookings to the region.

These experts have coined the term "coolcations" for summer trips planned around less-than-sweltering temperatures; they can be anything from a temperate coastal escape to a wintry snow retreat. Take **10 Skåne** in Sweden, a mere 30-minute drive across the Øresund Bridge from Copenhagen. The county is filled with lonely lighthouses, quaint fishing villages and rambling royal gardens—a place to slow down for walks on long beaches with colorful huts and extended *fika* breaks made up of strong coffee and cardamom buns.

There, the newly opened Maryhill Estate, a renovated baroque castle with 163 floral and candy-striped rooms on the rocky Øresund Sound, is grand enough to rival the châteaus of the Loire. With its intimate pool club and croquet lawns, it's the first great place to stay in Skåne and raises the bar for Scandinavia as a whole. Use it as a base camp for days spent exploring cider factories, cathedrals and palaces—or an excuse to check out the regional capital, Mälmo.

Big culinary news is also on the way. Chef Magnus Nilsson, who made a global reputation with Fäviken Magasinet, his now-shuttered restaurant at the far northern end of Sweden, will open Pensionat Furuhem this spring in a whitewashed building that once was a boarding school for women in the town of Båstad. It will be a destination dining experience collectively owned by its cooks and staff, offering traditional local cuisine, an all-day bakery and a few hotel rooms above.

■ RICK SORENSEN

If that coolcation isn't cold enough, you can of course turn the temperature down further: Think giant icebergs, miles of tundra and spectacularly long days thanks to the midnight sun. The mythical frozen landscapes of **11 Greenland** have typically been accessible only to travelers who come on cruise ships and disembark for a mere handful of hours. In 2023, 74 cruise ships visited Greenland on a total of 183 voyages—a 64% increase over 2022 alone. (Even within eyeshot of the fjords, you can still expect T-shirt weather through June, July and August.)

Exploring deeper into the terrain is getting easier. In late November the first international airport opened in the capital city of Nuuk near the territory's southwest coast, bringing five weekly flights from Copenhagen. Two more airports are expected in the southern cities of Ilulissat and Qaqortoq by 2026, reducing reliance on the cruise ports.

All this airport expansion has prompted tour operators such as Black Tomato to introduce trips highlighting culture and nature in Greenland's under-the-radar destinations. Forage for mushrooms, wild berries and other ingredients with a chef in Saqqaq; swim through icebergs in specially designed dry suits; or catch Arctic char the local way (with your hands) in the Amitsuarsuk Fjord. Then challenge yourself with a hike to the second-largest ice sheet in the world, in Kangerlussuaq.

Many of Black Tomato's itineraries send guests to Kiattua, a secluded camp near Nuuk with eco-conscious glamping tents, a hot tub and close-up views of the region's fjords. Don't expect it to be mobbed by the masses anytime soon. This special spot, like many others, is still accessible only via boat or helicopter.

If you want to take coolcations to their extreme, you can head to the Southern Hemisphere, where boreal summer is austral ski season. That's what Bob Purcell did in 1961, when he left his life as a New York City businessman for the much snowier climes of the Chilean Andes. He took over a modest resort there, **12 Portillo**, which had been created by adventure-seeking skiers in the 1940s with a lodge built by the government, and turned it into a destination as legendary among powder chasers as the sugar-dusted slopes of Niseko in Japan. Its 1,235 acres of mostly advanced-level slopes skirt the edge of a teal lagoon in the shadow of the Western Hemisphere's highest peak—a combination of spectacular conditions and eye-popping landscapes.

But what makes the place unique is how little it's evolved. In an industry dominated by global resort behemoths, Portillo remains defiantly independent. There's no resort town, tubing or sleigh rides. Instead, every amenity you need—whether cinema, disco or piano bar—is contained in a single six-story, lemon-yellow ski-in, ski-out hotel. Visitors sign up for either a full-week or half-week stay and eat their four daily meals (including Chilean tea time) at assigned seats in Portillo's wood-paneled ballroom, chatting with fellow travelers as if they were on a cruise. With a maximum occupancy of 450 guests, though, it means wide-open, uncrowded terrain when you leave the "ship"—there's no such thing as a lift line on this mountain.

So why prioritize it now, if it's been this way for decades? For its 75th anniversary, the Purcell family is bringing in a few (temporary) bells and whistles. There will be mountaintop dinners led by Chilean winemakers and adventures such as guided star walks and cold plunges available only this season. It's also easier to arrive, with Santiago's new $990 million international airport terminal only two hours away. Bookend the trip at Debaines, a 50-key property opened in December next to the capital's neoclassical opera house.

➔ In Le Canon, a village on eastern Cap Ferret, family-owned cabanas sell shellfish plucked from the bay

Cabane Reveleau
Balade sur Chaland
06.58.82.27.57

➔ Four alternatives to popular standbys

YOUR NEXT FAVORITE PLACE

■ CAP FERRET: KAREL BALAS. ANTIPAROS: COURTESY THE ROOSTER

13

If you like Saint-Tropez, try Cap Ferret

The new balm for French jet-setters who've grown weary of Saint-Tropez's billionaire bling is Cap Ferret. Not to be confused with Cap Ferrat, which lies a few towns farther up the tony Riviera, this boho-chic paradise is on a spit of land dotted with fresh oyster stands, giant sand dunes and wooden cabanas (plus luxury homes, natch) that separates the Atlantic from Arcachon Bay. It's like workaday Montauk, New York, a decade ago.

Stay at La Co(o)rniche or Ha(a)ïtza, two newish inns across the bay that blend Tudor timber with Cape Cod sensibilities for a more elegant effect than their overstylized names. Both are owned by the Techoueyres family, who will open a third property in the area in 2025.

Going with a group? This is an equally good spot to rent a private villa, such as those from Iconic House, a newish company with a quickly growing portfolio of high-end homes in the region.

Even Bordeaux—the nearest big city, only 40 miles inland—is reinvigorating its image to go beyond its world-class wine industry. This emerging "*petit Paris*" sports a Mondrian hotel designed by Philippe Starck set amid the hipster hangouts of the Chartrons neighborhood. And just outside of town, carved between the area's fabled wineries, is the brand-new Cabot Bordeaux, an offshoot of the beloved Canadian golf resort with 79 mod rooms and a hyperlocal wine cellar.

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If you like Santorini, try Paros and Antiparos

The Cyclades are no strangers to mass tourism, but there's so much more to the islands than the sunsets on Santorini and club beats on Mykonos. Beyond them are dozens of other islets dotted with dramatic rocky coastlines, blue-and-white stucco towns and miles of pebbly beaches.

Emerging as the Aegean's rising stars are Paros and its smaller neighbor, Antiparos, two bougainvillea-covered oases separated by a five-minute ferry. They're popular with a well-heeled crowd that's keen to visit villages such as stone-walled Parikia or to drench themselves in tanning oil along the deep azure sea. In the town of Naousa, the nightlife is every bit as vibrant as in Mykonos—but without the sky-high prices.

It's no wonder the hotel scene has had a glow-up. In the past year, the intimate Andronis Minois on Paros has added 44 rooms with secluded terraces only 500 feet from the water's edge. It's a perfect plan B if you're unable to snag one of 17 glamorous rooms at Rooster Antiparos, the pioneering property on the island's undeveloped western shore. Go to this island duo now, and you'll see some of their most staggering sights in relative solitude: Our favorites include a 5,000-year-old theater and what might be the most ancient cave in Greece, around 45 million years old and considered by some a passageway to the underworld.

It's unlikely to stay quiet for long. A $45 million revamp of Paros' airport is underway, and by summer 2026, a longer runway will receive direct international flights for the first time. ➔

➔ The Rooster's modern Mediterranean restaurant sources ingredients from its own farm on Antiparos

15

If you like the Maldives, try Seychelles

Being 1,000 miles from the mainland—Kenya's eastern coast—has helped the 115 islands of Seychelles remain an exclusive and rarefied escape, with luxury hotels and prices to match. That's not simply a by-product of its remote geography; it's mandated: Legislation has long limited hotel development to very low-density projects, making the openings of LVMH's Cheval Blanc Seychelles and a Waldorf Astoria an exciting new reason to visit.

For its 52 villas on the main island of Mahé, the French company tapped architect Jean-Michel Gathy to build glassy structures with the high-pitched rooflines common to Seychellois Creole design. Inside are intricately woven wall hangings by Joël Andrianomearisoa of nearby Madagascar. Guests can access a Guerlain spa and five restaurants—several facing a shoreline piled with granite boulders that look like beached whales. Waldorf Astoria's 50-villa retreat on the tiny, gardenia-strewn private island of Platte—a sanctuary for hawksbill sea turtles—is accessible only by a 25-minute plane ride. It's a place for kitesurfing, fly-fishing, scuba diving and guided reef walks.

And then there's Frégate Island, which many locals considered Seychelles' first luxury resort when it made its debut in 1999. It reopens in the back half of 2025 after a three-year closure. Its 17 already-spacious villas will have been expanded, with the addition of floor-to-ceiling windows, solar-power hookups and new furnishings. Just as important is what remains unchanged: protected habitats for the critically endangered species that live on the resort's 750-acre grounds, including the magpie robin, Frégate beetle and giant Aldabra tortoise.

16

If you like Nashville, try Lexington, Kentucky

Horse races, elaborate hats and bourbon trails: Tradition-filled Lexington will celebrate its 250th anniversary in June, offering a chance to see the Southern belle in rapid evolution.

The city will soon cut the ribbon on a $35.5 million, 22-mile-long paved pedestrian and biking trail system connecting some of its most appealing neighborhoods—including the aptly named Distillery District and the restaurant-packed Downtown—to the waterfront of the scenic Kentucky River.

Four newly updated African American Heritage walking tours offer highlights of the city's past, including little-known stories of Black horse jockeys and the historic alleyways that enslaved people and domestic servants took to get to and from work unnoticed. Fresh Bourbon, one of the state's first Black-owned distilleries, added mixology classes and whiskey tastings with food pairings. And i In June, a 10-day SoulFeast Week will showcase Black-owned restaurants with hip-hop brunches and farm-to-table dinners at Coleman Crest, Kentucky's first Black-owned organic farm.

And look out, Nashville. Lexington is gaining cred for its flourishing music scene, which is now easier to tap into. The Manchester, the city's first boutique hotel, is blocks away from Manchester Music Hall and the Burl, where Bayker Blankenship and other emerging country stars are set to play in 2025. And in May, during the famed Kentucky Derby, it's worth betting Taylor Swift will make an appearance at Churchill Downs in nearby Louisville, 90 minutes away: Her boyfriend Travis Kelce's racehorse is expected to compete. Its name? Swift Delivery. Ⓑ

KENTUCKY
BUFFALO

→ Carson's Food & Drink, near Thoroughbred Park downtown, is a Lexington mainstay for steaks and pub grub

■ LEXINGTON: PHOTOGRAPH BY NATOSHA VIA FOR BLOOMBERG BUSINESSWEEK. PRINCIPE: MIGUEL MADEIRA/HBD PRINCIPE GROUP

THE ECOSYSTEM ECONOMY

➜ By
Nikki Ekstein

➜ A radical new approach to conservation is about to be piloted in São Tomé and Príncipe, the "Galápagos of Africa"

➜ Bom Bom beach resort on Príncipe island

17

Príncipe

Before Mark Shuttleworth became the driving hospitality force in São Tomé and Príncipe, a nation of two volcanic islands off Africa's western equatorial coast, he was merely looking for a place to get away. Living in London and with family in Cape Town, he has long had a stressful life as chief executive officer of Canonical Ltd., the company that developed the Linux-based operating system Ubuntu. "I was spending nights on Google Maps looking for islands along the way where I could be a vegetable and not feel bad about it," he says.

That's how he found Príncipe, where jungles crash into pearlescent beaches dotted with Jurassic-looking palms and vistas are interrupted by little more than the odd thatched roof and emerald hills. The seas hover around 80F (27C), and Technicolor reefs host vast troves of rare creatures endemic to the Gulf of Guinea.

It's "the Galápagos of Africa, but with rainforests instead of desert," Shuttleworth says. "There are these really ugly fish that walk on land—I mean, literally, fish that walk on land! When you see them, it's like you've been transported back about 500 million years."

Fifteen years later, the 51-year-old billionaire has expanded what was supposed to be just a personal vacation property—a dilapidated, abandoned resort built in the 1980s by an eccentric fisherman—into a collection of four hotels scattered across the island. The effort has so far cost him about $50 million, a number that will climb as he gradually morphs each one into a true five-star eco-resort. First up is the low-slung Bom Bom, which reopened in September with 18 beach bungalows.

Putting Príncipe on the global ecotourism map is only one prong of Shuttleworth's conservation aspirations. Far more wide-reaching and ambitious is his plan to have every local—not just the naturalist guides at his resorts—invested in and benefiting from the protection of the island's natural resources.

"In terms of GDP, Príncipe may be one of the poorest places on Earth," Shuttleworth says. "But there's a difference between poverty and indignity, and this is a very proud, dignified and healthy place." Much of the island's population depends on subsistence fishing and farming, plus cocoa exports, a vestige of Portuguese plantations. Joint oil ventures with Nigeria are an emerging economic driver.

"As I fell in love with Príncipe, I also started to realize, 'OK, there are hard problems here,'" he says. Shortly after he bought his first property, Shuttleworth heard murmurs of plans to raze rainforest to build a palm oil plantation. Even tourism risked destabilizing Príncipe's uniqueness as the local economy grew. The traditional model of conservation—buying up tracts of land to set aside as reserves where hunting, logging and most farming would be illegal—wasn't going to cut it. On a tiny 55-square-mile island, that approach would mean taking away the 8,500 inhabitants' resources and agency in choosing their own path to growth. ➜

← So Shuttleworth came up with a radical alternative, honed over a decade of discussion with both the government and political opposition leaders. When he pilots it in 2025, the Natural Dividend will be a quarterly sum, at first paid out of his own pocket, for all Príncipeans, with the precise amount fluctuating according to how carefully they maintain the unique ecological value of their surroundings. By involving the entire island's population, the odds of large-scale success could increase.

"People have an absolute right to food and shelter and development and so on," Shuttleworth says. "But everybody should also have a stake in the ecosystems, whether they're an employee of mine or not." He equates it to a universal basic income or pay incentives for ecosystem-supporting businesses. "This is no different than paying farmers to have beavers on their land so that their dams will prevent regional flooding when it rains like crazy. That person who's cutting down two hectares of forest to farm peppers? I need to make them a better offer. I need to say, 'Look, imagine that the trees and the birds and the bees and the butterflies would pay you rent.' "

For now, Shuttleworth is working with the government to create a baseline against which to measure a local's impact. "We've been taking a real-time census, surveying the island with drones and taking stock of the ecosystem," he says, explaining how high-resolution images will get updated weekly and affect dividends. "If you bugger up the land, the number goes down. And we're not doing that as a policing effort. Wanna cut down a tree? Cut down a tree. If you don't like my offer, it's your land."

Shuttleworth understands the inherent ick factor in this techno-utopian ideal: "Some people would say, 'Well, that's a whole new level of surveillance.' And I would say, 'Well, we now have a whole new level of interaction between nature and humans.' "

His pitch to tourists is simpler. "The way that the jungle just abuts the beach is such a *Robinson Crusoe* experience," he says. "But there are no spiders or snakes, and if you're coming from most of Europe, there's no jet lag," he says with an earnest laugh. "It's tropical Africa for sissies."

↑ The pool at Curtain Bluff in Antigua

8 MORE DREAM VACATIONS

→ From private island fantasies to *White Lotus*-inspired escapades

18

Antigua and Barbuda

Designated by the United Nations as the fastest-growing economy among the Caribbean islands in 2024, Antigua and

■ ANTIGUA: COURTESY ANTIGUA & BARBUDA TOURISM AUTHORITY. JAIPUR: COURTESY RAFFLES HOTELS & RESORTS

← The library-like Writer's Bar at the Raffles Jaipur

Barbuda are enjoying tremendous investment—$1 billion in new hotels will have opened here from 2023 to 2025. Of the 1,000-plus rooms included in that figure, 12 are particularly eye-catching: Antigua's first overwater bungalows, found at adults-only, all-inclusive Royalton Chic. Each has its own plunge pool, overwater hammock and glass floor panel that lets you spy on kaleidoscopic fish from the edge of your bed. On Barbuda, there's also the 36-room Nobu Hotel, which Robert De Niro is opening in November on the secluded and lush Princess Diana Beach.

All this amped-up competition has inspired the twin-island nation's longtime standard-setters to raise their game. Oetker Collection's Jumby Bay, for instance, has added butler service and a private-island beach club called the Hut, where multi-course, large-format meals can be shared on tables in the sand. And Carlisle Bay Antigua is rolling out $100 million in phased upgrades through 2026, including ocean suites by British-Nigerian designer Miminat Shodeinde.

Don't expect the momentum to slow down anytime soon. Rosewood, One&Only and a resort from Egyptian billionaire Naguib Sawiris are all also on the way—giving Antigua and Barbuda as much luxury cred as Anguilla and St. Bart's in the years ahead. The key difference? You can fly here directly from most major East Coast airports, in about four hours or less.

19

Jaipur

In the early 1700s, Maharaja Sawai Jai Singh II brought skilled craftsmen from around his kingdom to fill the new capital of Rajasthan with intricate temples and sandstone palaces. Now, its royal patrons, the 26-year-old Maharaja Padmanabh Singh and his sister Princess Gauravi Kumari, are perpetuating the Pink City's legacy of beauty for the next generation.

In November the maharaja unveiled the Jaipur Centre for Art, showcasing international and Indian contemporary artists; then in December he opened a fine-dining restaurant in a palace courtyard called Sarvato. The princess' new jewel-toned concept shop, Palace Atelier, is like a shoppable museum. It features locally made home goods, designer saris and fine jewelry.

Even the city's latest hotels take their design cues from age-old artisanal craftsmanship. The perpetually booked, five-room Johri has added three more suites, each themed around a precious stone. And the elegant 50-room Raffles Jaipur, modeled after a *zenana*, or women's palace, opened last summer with a dreamy rooftop pool flanked by *chhatri*, open-air pavilions displaying typical Mughal architecture.

20

San Diego

Although it's long been defined by *Top Gun* and top surfers, San Diego is evolving into a bona fide arts destination, too. The $125 million renovation of the San Diego Symphony's Jacobs Music Center, which wrapped in September, is a perfect complement to its reimagined outdoor venue, an elegant waterfront structure aptly named the Rady Shell. And Selldorf Architects' $105 million expansion of the city's Museum of Contemporary Art marries new galleries with giant windows and epic Pacific vistas.

Landmark hotels are meeting the moment with overdue upgrades, including the 938-room Hotel del Coronado, ➔

← whose red Victorian turrets are a San Diego signature. The hotel's half-billion-dollar makeover, which wraps in April, will add a vibrant new look, 75 seaside villas and a Nobu restaurant. Estancia La Jolla Hotel & Spa's own transformation has brought a contemporary ranch style to its tired rooms and polished up its 10-acre property, a former equestrian estate. And early in 2025, CH Projects, which already whipped the Lafayette Hotel into a fantasy of wild mismatched patterns, will reveal its reimagination of a broken-down beach motel, the 31-room Baby Grand. It's almost enough to overshadow the arrival of two giant pandas at the San Diego Zoo—but not quite.

21

Colombian Amazon

Deep in southeastern Colombia, near Amacayacu National Park, the new Nomad Lodge beckons adventurous travelers with an ambitious ecotourism project that eases access to the pristine jungle and supports the 22 Indigenous Aticoya communities that live there. Only eight guests at a time can sleep in its solar-powered bungalows, which have canopied terraces that jut straight into the landscape. They'll wake at dawn to canoe through sunken forests teeming with pink dolphins, laze on hammocks during the hottest hours of the day, then reemerge at dusk to scan the canopy for snoozing sloths.

Getting here is an adventure in itself, beginning with a two-hour flight from Bogotá to Leticia, followed by a two-hour boat ride up the Amazon. As the first of 10 planned Nomad Lodges in South America whose business model shares revenue with local communities, it reflects a broader trend that helps travelers (delicately) tap into the world's final frontiers.

22

Costa Palmas, Mexico

Almost 4 million tourists arrived at the San José del Cabo airport in 2023, most of them heading to the 20-mile stretch of posh resorts along the Los Cabos Corridor. But roughly 60 miles away on the East Cape of the peninsula, a more exclusive alternative is emerging in Costa Palmas. The 1,500-acre private beachfront community was first put on the map by Four Seasons in 2019 with a meandering complex of white-on-white villas and an acclaimed golf course designed by Robert Trent Jones II.

Now come several more options, including an Aman resort called Amanvari, where Athens-based Elastic Architects has designed boxy bungalows with retractable glass walls and stairs plunging into the sea. The interiors at the forthcoming Casa Blake, whose residences can be rented by vacationers, are by maximalist Martin Brudnizki of London. And Brudnizki, who plays masterfully with colors, textures and florals, was also tapped to create an enchanting nightclub at the Four Seasons, where painted *alebrijes*—mythical folk art creatures—climb the hot pink walls. The lineup of chefs descending on Costa Palmas includes Ludo Lefebvre and Nancy Silverton, both from Los Angeles, and there's an outpost of global Greek favorite Estiatorio Milos as well.

There's the Costa Palmas Foundation, too; it appeals to travelers' desire to leave a positive impact. Funded by the resorts, it organizes beach cleanups, sea turtle release parties, toy drives and other volunteer opportunities to connect guests and residents with nearby villages.

→ Sunken seating and a water feature in the lobby at Four Seasons Los Cabos at Costa Palmas

■ FOUR SEASONS: COURTESY COSTA PALMAS. CAVIAR: COURTESY SOMNI RESTAURANT

23

Los Angeles

At a time when fine dining has been declared dead, Tinseltown is making it legitimately exciting again. Foremost in the city is Somni, where chef Aitor Zabala makes 20 courses seem to fly by with his super-modernist $495 Spanish menu—the caviar service includes meringue blinis with smoked butter cream.

By the time 2025 rings in, Alinea alum Dave Beran—who trained Jeremy Allen White to act like a chef in *The Bear*—will have opened Seline in Santa Monica. His $295 parade of 15 to 18 modern SoCal courses will be served from an open kitchen that flows directly into the dining room. The first US location of the famed Tokyo sushi spot Udatsu is now open in a former recording studio on Sunset Boulevard; its modern $225 omakase is served to only eight lucky diners at a time.

Of course you'll need to sleep it all off. For that, there's the Regent Santa Monica Beach, with 167 breezy rooms and suites that evoke a yacht. And, yes, breakfast is an event here, too, courtesy of spots from both Michael Mina and Ayesha Curry.

← Dashi meringue with smoked butter and Astrea caviar at Somni in Los Angeles

24

Bangkok

How do you go from backpacker haven to crazy-rich oasis in a decade? Look no further than Bangkok, where the upcoming season of *The White Lotus* will provide ample proof of the city's dizzying ascent. Take the Mandarin Oriental, whose $90 million renovation will feature in the show; it's Thailand's original grande dame, now with a crystal-clad lobby and two river-facing pools.

In the ritzy Phloen Chit district, Aman will soon make its highly anticipated city debut with the Jean-Michel Gathy-designed Aman Nai Lert Bangkok, and Six Senses Forestias will put the little-visited Bang Kaeo suburb on the map with a wellness-focused members club tucked into the woods 10 miles east of the central business district. There's also Dusit Thani Bangkok, which reopened in September after a $1.3 billion reconstruction with modern interiors by Hong Kong design legend André Fu Studio.

But the glitziest new arrival isn't a hotel—and it's free to explore. Opened in October, the $3.9 billion One Bangkok skyscraper super-development rises out over Lumpini Park with three interconnected shopping malls, a mile-long loop lined with more than 250 restaurants and public art pieces by the likes of Anish Kapoor and Tony Cragg. Add an extension of the city's metro and cleanups of the waterways that snake through the city, and there's plenty of reason for Hollywood's cast of bratty holidaymakers to consider a return trip.

25

Out Islands, Bahamas

Of the Bahamas' 700 islands, only about 30 are inhabited—and only one of them, New Providence, has the urbanity (and enormous cruise port) of Nassau. Besides that and Grand Bahama, you have what's known as the Out Islands, home to pristine beaches, untouched mangrove-laden keys and now a host of new luxury resorts accessible mainly by tiny turboprop planes.

Next year's most anticipated arrival is Montage Cay, a 53-acre private-island residential resort in the Abacos chain. Built at an estimated cost of $68 million, it will have 50 suites, a 47-slip deep-water marina and seven private beaches upon completion in late 2025—along with the detailed, highly personal service that makes Montage hotels such reliable hits. The forthcoming Banyan Tree Bimini, with its Maldives-esque overwater bungalows, won't be done until 2026. But some features will be ready imminently, including an outpost of St. Barts' famous Bonito.

All this builds on recent momentum making the Out Islands increasingly worth the trek. On Eleuthera, the Potlatch Club, a 1960s icon, was revamped in 2024 to have 11 fashionable rooms. As for how to get there? Semiprivate jet company Tradewind Aviation LLC has added direct service from South Florida to North Eleuthera, and American Airlines has added new flights to Nassau from Chicago and Dallas-Fort Worth. Ⓑ

Reported by Jackie Caradonio, Sara Clemence, Nikki Ekstein, Lebawit Lily Girma, Mark Johanson, Sarah Khan, Kate Krader, Jen Murphy, Brandon Presser, Sarah Rappaport, Chris Schalkx and James Tarmy

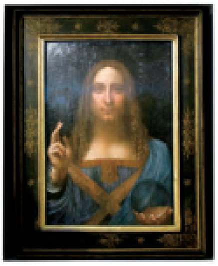
Sticker Shock

● By Kid Beyond

Each item below is one of the most—if not *the* most—expensive of its kind ever sold. You may not have bought the goods yourself, but we bet you can figure out how much they sold for. Each price corresponds to an item with the same symbol. Some items have more than one symbol, so you'll need to use your keen sense of whether a sculpture is more expensive than a pair of shoes to make a match. Check page 10 to see if you're right!

CATEGORIES: 🎨 Arts 💼 Business ★ Celebs 🏒 Sports 🚗 Vehicles 👕 Wearables

A.	💼	$186 billion
B.	💼	$26 billion
C.	🏒	$6 billion
D.	🚗	$800 million
E.	★	$765 million
F.	★	$550 million
G.	🎨	$450 million
H.	🚗	$142 million
I.	🎨	$141 million
J.	👕	$71 million
K.	👕	$31 million
L.	🎨	$28 million
M.	🚗	$15 million
N.	👕	$10 million
O.	★	$5 million

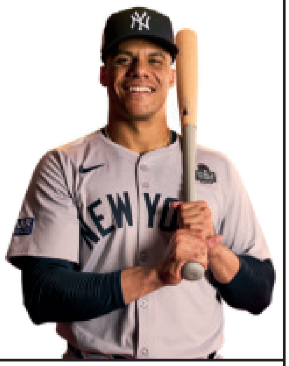


🎨 **Painting**
Leonardo da Vinci's *Salvator Mundi*

★🏒👕 **Shirt**
Michael Jordan's 1998 NBA Finals jersey

🚗 **Yacht**
Dilbar, the world's largest yacht

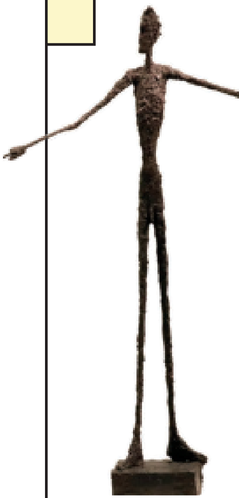
👕 **Watch**
Patek Philippe stainless steel Grandmaster Chime



★🏒 **Athlete**
Juan Soto's 15-year contract

🚗 **Car**
1955 Mercedes-Benz 300 SLR Uhlenhaut

🎨★👕 **Shoes**
Ruby slippers from *The Wizard of Oz*



🎨 **Sculpture**
Alberto Giacometti's *Man Pointing*

💼🏒 **Sports team**
Washington Commanders

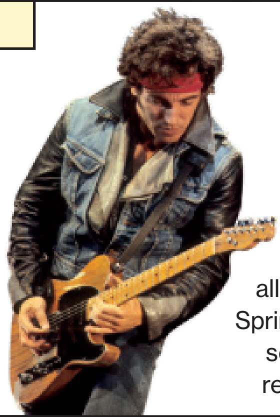
💼 **IPO**
Saudi Aramco, the world's largest oil company

★👕 **Dress**
Marilyn Monroe's "Happy Birthday, Mr. President" dress

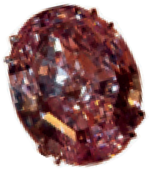
AOL
TimeWarner

💼 **Merger**
AOL's purchase of Time Warner

🚗 **License plate**
Dubai "P7" plate



🎨★ **Body of work**
The rights to all of Bruce Springsteen's songs and recordings



👕 **Jewel**
The Pink Star, a 59-carat pink diamond

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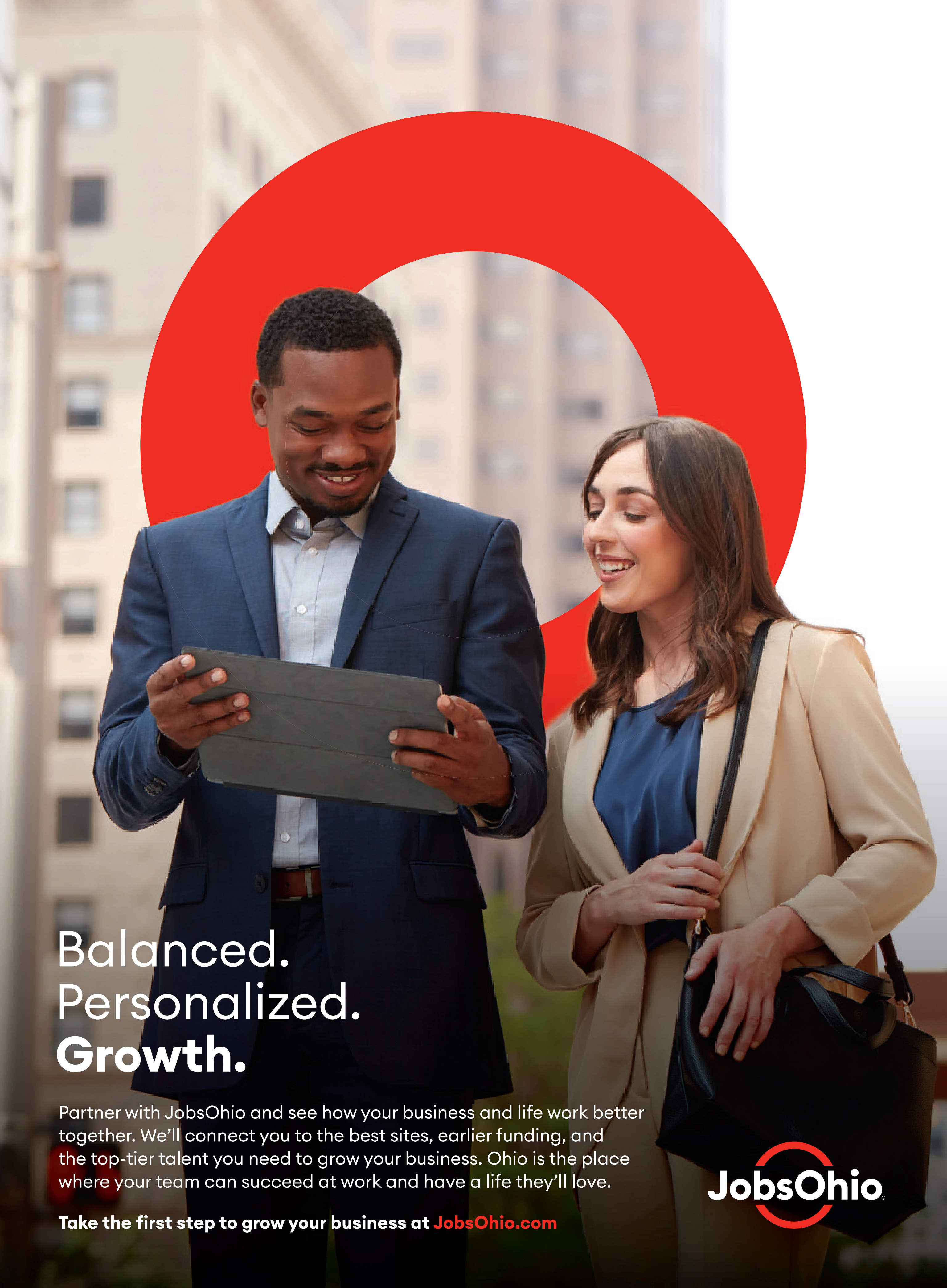

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